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ADDRESS.

CHAIRMAN'S ADDRESS.

Presented to the Section on Laryngology and Otology, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY B. ALEX. RANDALL, M.D.

PHILADELPHIA, PA.

The ordinances of the ASSOCIATION, gentlemen, impose upon your Chairman (unless the imposition be greatest upon the unfortunate hearers) the duty of addressing you in relation to the general interests of our specialties and of our Section. Abler men have used the opportunity to inculcate important teachings or spread the knowledge of advances in our scientific progress: my theme shall be merely the reiteration and enforcement of the self-evident proposition that this should be *a Section*—a group of men studying and generally practicing the related and inseparable branches of otology and laryngology. Each of us will have his favorite lines within this broad territory; but none of us should regard it as two territories with any natural or proper line of demarcation. Let us all ride our hobbies, then, through the length and breadth of the domain; and it may well be that we shall thus learn how little bottom many of them have and how needful it is that we should secure better mounts.

During the ten years that this Section has been in existence there has been a growing yet incomplete recognition of the amalgamation of the usually distinct specialties which it enforces. The laryngologist has been discovering the nose, learning to treat it, unlearning many over-treatments and changing from a physician treating the affections of the throat and chest into a surgeon dealing with laryngo-oto-rhinology. The oculist-aurist of past decades—dare I admit that I am still one?—has been learning rhinology as well as following the general surgeon in intracranial surgery, unlearning many over-minute and finikin ways, while demonstrating the value of minutely accurate study and intervention. In short, there has arisen a recognition within the past fifteen years that the nose with its accessory cavities forms an organic whole; and while there has been the inevitable overswing which would make the ear and larynx mere appendages, engulfed at times in the hypothetic eddy behind a nasal spur, we must remember that it is by cranks that most great wheels are set in motion, and concern ourselves principally with the due utilization of the momentum thus attained. Honest work, however narrowly conceived and executed, must continually increase our knowledge at points all along the line; and the presentation of such advances at each of our meetings, pulled to pieces, if they are flimsy, and winnowed of the chaff which they too often contain, must aid in making the real value within them an addition to the common heritage of the profession, general and special. Let us seek the good in every paper presented, whether by some man whose reputation is national or wider, or by some man just entering our Section. The crotchets of the elder may impair or obscure the value of his facts, and his personal bias may warp his conclusions far from the logical result.

The discussion, if properly impersonal and scientific in spirit, ought to bring all this to light, while not rightfully giving any offense. Less experienced men may set forth as new, matter which is new only to themselves; yet their point of view and the variation of conditions may make the presentation well worthy of our respectful consideration, and I trust that you all have come to learn, as I have. Yet, let us remember that we have a duty to perform; that we sit as a jury and ought to pass judgment (kindly though it may be adverse) upon some of the papers read before us. The AMERICAN MEDICAL ASSOCIATION with its Sections seeks to constitute a medical democracy in which every practitioner may make himself duly felt; but it can make and keep itself respected only by firm, reasonable self-government, lest it become a mob in which clamor and self-seeking would prevail. Meeting in widely separated portions of the country, as we do, a large part of the adherents of our Section must be different each time. It will happen that now and then a man whom we can not accept as a representative will abuse his privilege of the floor and by his paper or discussion risk making us as well as himself ridiculous. If these things could be ignored it might be the best treatment; but they will generally find their way into the JOURNAL as a part of our transactions. Herein I believe we have made an important step in beginning the publication of a bound volume of transactions. In its series we may have a continuity and unity which has never before made itself felt in our Section. A list of the adherents—which was unfortunately omitted this year—should annually be enlarged and revised. The *esprit du corps* inherent in such an arrangement will do much to establish a censorship, which in flagrant instances we can make striking by excluding unworthy matters from our records. Let us hope that this will not be needed, but that the knowledge that such censorship is present will serve to keep every one who addresses us within rational bounds; that our discussions may be impersonal dealings with facts as they have presented themselves to each of us, and that with fullest unity of spirit and friendly rivalry in helpfulness we may strive to make our Section the most successful in the AMERICAN MEDICAL ASOCIATION.

ORIGINAL ARTICLES.

EVERSION OF VENTRICLE OF LARYNX.

AND CYST INVOLVING LARYNX AND SIDE OF NECK.

BY E. FLETCHER INGALS, A.M., M.D.

CHICAGO.

D. F., aged 39 years, was brought to me May 4, by Dr. Reagan, on account of difficulty in speaking and a cystic tumor about 1½ inches in diameter just below the angle of the jaw upon the right side. The patient gave the following history: In 1890, after some unusual exposure, an abscess had developed in the region where the tumor now presented. It had swollen rapidly and was lanced at the end of a week, giving vent to yellow pus. Again, in 1892, he had had similar trouble. There had been slight swelling at the point ever since. The Doctor stated that he had seen him about a year ago, and found in this same region what appeared to be a sac containing air, which could be made to entirely collapse on pressure. The patient had been subject to tonsillitis when a boy, but gave no history of any other disease; indeed, he said he had never been sick in his life. He complained of a little aching at times in the region of the growth; the appetite and digestion were good, and his weight was greater than ever before. There was no cough; the voice was a coarse whisper attended by

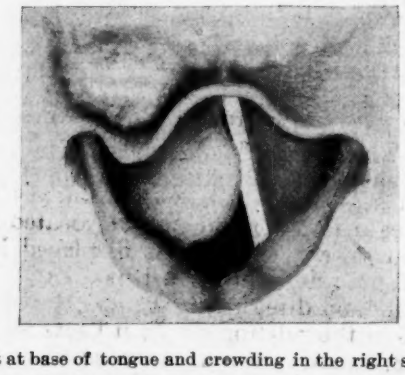

Fig. 1.—Cyst at base of tongue and crowding in the right side of larynx.

a peculiar vibration that was subsequently found to be caused by vibration of the epiglottis. There was some dyspnea upon exertion; pulse was 68; temperature 99.4.

Upon examination externally, I found an elastic ovoid tumor about 1½ inches in its various diameters. By pressure it could be nearly dissipated, but it immediately returned when the pressure was removed. I also found that on pressure over the tumor he was unable to speak. Upon examination of the throat the fauces were found slightly congested; there was bulging of the right side of the base of the tongue, crowding somewhat against the epiglottis. The swelling was about five-eighths of an inch in diameter, having a cystic appearance at fissure-like places where the glandular tissue had been parted by the swelling. The swelling extended downward at the right side of the larynx, crowding the epiglottis inward and causing bulging of the ventricular band so as to completely hide the right vocal cord and ventricle upon inspiration (Fig. 1), and to hide the left cord and a part of the left side of the larynx on attempted phonation. The right side of the epiglottis was found to vibrate synchronously with the vibration of the voice.

I inserted the needle of an exploring syringe into the tumor and demonstrated its cystic character. The following day I introduced an aspirator needle and drew off two ounces of a thick, mucilaginous, semi-transparent fluid, when the cyst appeared to be entirely emptied. I then injected three-fourths of a dram of a mixture of equal parts of carbolic acid and glycerin through the same needle; this was allowed to remain for several minutes and was worked about so as to come in contact with every part of the cyst. It was then withdrawn and the needle removed. The puncture was closed with cotton and collodion dressing. No smarting was caused by the acid in the cyst. Immediately afterward the voice was found to be very much improved, and the vibration had ceased; but upon examination of the larynx I found that although the cystic tumor in the base of the tongue and at the side of the larynx had disappeared, there was a smooth reddish tumor about five-eighths of an inch in length and about three-eighths of an inch in its other diameters, projecting from the right side of the larynx just above the vocal cord. This was demonstrated to be a prolapsed ventricle.

Fearing acute swelling as a result of the injection of the carbolic acid, I had the patient return to my office about five hours later, when I found some edema of the right side of the larynx. I snipped the mucous membrane with cutting forceps in a couple of places, to let out the serum, and sent the patient to the hospital with the direction that cold compresses

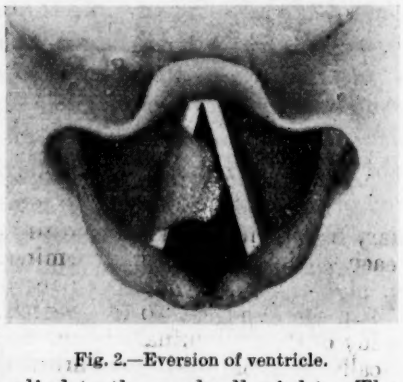

Fig. 2.—Eversion of ventricle.

be kept applied to the neck all night. The next day I found the everted ventricle in the same condition, and no appreciable inflammation of the larynx resulting from the treatment of the cyst. I anesthetized the parts with a 10 per cent. solution of cocain, before attempting to remove the ventricle. The cocain made the patient so sick that he retched and vomited, so that the parts could not be completely anesthetized and it was very difficult to use the instruments in the larynx. I attempted, however, to remove the everted ventricle with a cutting forceps, but succeeded only in catching and pinching it strongly without cutting the mucous membrane; but this slightly reduced its size. I then wired a polypus snare—for which I have a long bent tube designed for use in the larynx—with a No. 8 piano wire, and succeeded in passing this loop over the tumor caused by the everted ventricle. With this I cut the protruding tissues off close to the surface. I had the patient keep cold compresses on the neck during the following night.

When he returned to me, a couple of days later, I found the larynx clear of all obstruction, with some depression of the right ventricular band and moderate congestion and thickening of the vocal cords. There had been no inflammation caused by removing the ventricle, and there was no swelling at any part

of the cyst. The voice was still somewhat hoarse in consequence of thickening of the cords, but otherwise he was well. I directed him to use a mild astringent spray in the larynx twice a day and allowed him to go to his home.

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THE RELATIONS OF THE COLON TO INTRA-ABDOMINAL TUMORS.

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CHICAGO.

The correct diagnosis of an abdominal tumor is often one of the most difficult problems that confront the surgeon. Nor can the importance of the question be in any way diminished by the statement that an exploratory operation will decide. Notwithstanding the comparative harmlessness of an exploratory celiotomy under proper precautions, no surgeon is proud of having to open the abdomen to diagnose a pregnant uterus, or after thrusting his trocar into a supposed ovarian cyst and drawing it up to find an inextricable mass leading to the pancreas. Still, incidents similar to these are common in the history of surgery.

The object of this paper is not to consider the many means employed in making a diagnosis of an abdominal tumor, but simply to illustrate and emphasize the importance of a simple procedure which is too often neglected.

In arriving at a conclusion as to the nature of an abdominal tumor, the first point to determine is the particular organ or tissue from which it takes its origin. Could this point always be correctly determined, the greatest obstacle to a diagnosis would be overcome. For many years the external topography of the abdomen has been subdivided into various regions or areas by arbitrary lines, and the viscera within, corresponding to each region carefully determined, so that a tumor found occupying a particular region could be referred to an organ normal to that region. Unfortunately, many of the abdominal organs are normally or pathologically movable, and hence are often not found in their habitual locations; and again, many large tumors are so displaced by growth that the region whence they took their origin can no longer be defined. These facts render the subdivision of the abdominal cavity into regions by external lines often of but little value in determining the location of a tumor. What we wish to know is, not the relations of the tumor to arbitrary lines, but its relations to the viscera themselves.

The colon, owing to its peculiar, fixed, circuitous route, and the facility with which it can always be identified, provides us with a most valuable landmark in determining the location of a tumor, and thus, its point of origin.

If we take the inner or mesial layer of the longitudinal mesocolons and the inferior or caudal layer of the transverse mesocolon as a dividing line, we subdivide the abdominal cavity into four regions or areas, namely, the central region, surrounded by the mesocolon; the superior region, lying above, or cephalad of, the transverse mesocolon; and the right and left postero-lateral regions, lying external to and behind the longitudinal mesocolons. While these regions are not at all fixed as regards size and shape, they are quite distinctly fixed in an anatomic sense; and furthermore, as I shall attempt to show, such a subdivision of the abdominal cavity is of considerable value in the diagnosis of intra-abdominal tumors.

The boundary of these several regions as here defined is quite elastic, and a tumor originating in any one of them may by enlargement come to occupy nearly or quite all of the abdominal space. This, however, can occur only by a displacement of the boundary, and it is the recognition of this displaced boundary that enables us to refer the origin of these tumors to their respective regions. This boundary itself can not be recognized through the intact abdominal wall, but attached to its free border is the colon, which at all times can be easily outlined, and a displacement of one corresponds to a like displacement of the other.

To facilitate the outlining of the colon it should be distended by the insufflation of some harmless gas. The distension of the colon as a means of diagnosis in abdominal tumors is not in itself new, as it has been referred to by numerous writers in a desultory way for many years.

Many writers[1] recommend the distension of the stomach and colon with CO_2 and air in the diagnosis of abdominal diseases of these organs, and (Runeborg) in the diagnosis of abdominal tumors, but we have found no attempt at a systematic handling of the subject until Minkowski's article[2] on the combined gaseous distension of the stomach and distension of the colon with water, as an aid in the diagnosis of abdominal tumors. He detailed his resnlts in 100 cases of abdominal tumors, and drew the following conclusion: "An abdominal tumor, on distension of the stomach and colon, usually moves in a direction toward the normal location of the organ from which it takes its origin."

While this is applicable to small movable tumors it does not obtain in tumors so large as not to admit of displacement nor in fixed or immovable tumors. In these cases the tumor can not be located by noting the region toward which it is displaced by a colon distended with fluid, but must be located by noting the manner and direction in which the colon itself is displaced or the relation which it bears to the abnormal enlargement. As a means of outlining the colon the insufflation of air or some harmless gas is decidedly preferable to the injection of fluid. Not only is the colon more easily and quickly located by the insufflation of air, but the method is much simpler and easier of application. Besides the annoyance and inconvenience of at times providing for the evacuation of the fluid, many patients are unable to retain sufficient fluid to distend the entire colon without exciting such violent peristalsis as to be painful and thus interfere with a careful examination of the abdomen.

Before practicing insufflation the colon should be thoroughly emptied and the tumor carefully mapped out upon the surface of the abdomen. For insufflating we make use of the ordinary double rubber bulb of a hand atomizer. To the end of the rubber tubing is fixed a glass or hard rubber tip which is inserted into the rectum and surrounded by a towel or napkin to prevent the escape of gas. Air is now gently pumped into the colon and almost instantly passes around to the iliocecal valve. As the air rushes in, distending the colon, it can be frequently outlined by the eye throughout its entire course including the cecum. Should it dip deeply into the loin or be cov-

[1] Ebstein, Volkmann's Klin. Vorträge. No. 155; v. Ziemssen, Deutsche Arch. f. Klin. Med., 1883, Bd. xxxiii. S. 235; Runeborg, Deutsche Arch. f. Klin. Med., 1884, Bd. xxxiv, S. 461.

[2] Berlin Klin. Woch., 1888, No. 31.

ered by the tumor, its course can easily be followed and outlined by percussion. The relation of the distended colon to the previously outlined area of tumor dulness can now be determined.

I have never seen the use of air in this way followed by any bad results. It is usually quickly expelled spontaneously or should it be retained and produce slight colicky pains the introduction of a rectal tube is all that is necessary to insure its escape.

The diagnostic value of thus determining the relations of the colon to the abdominal tumor may best be shown by referring to actual cases. We will first consider tumors of the central area. Here will be included, not only such tumors as actually have their origin within this area, but also such as originate within the pelvis of the female and project into this area. In the list will be found tumors of the omentum and mesentery, solid and cystic; retroperitoneal tumors; lipomata, lymphosarcomata, lymphangiectatic and ecchinococcus cysts, circumscribed peritoneal exudates, tumors of the small intestine, tumors of displaced or movable kidneys and all tumors of the female generative organs that rise into the abdominal

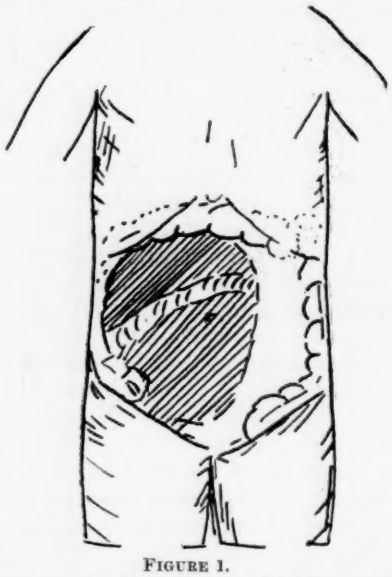

FIGURE 1.

cavity. It is not to be supposed for a minute that simple distension of the colon is going to differentiate all these tumors, nor is it the intention to present here the various points of differential diagnosis, but a knowledge of the location of the colon may be of considerable aid in the diagnosis of many of them, as will be shown.

Case 1.—A boy, aged 5 years, presented a large tumor filling the abdominal cavity, but most prominent to the right and above the umbilicus. Dulness extended into the right loin, and was continuous with the hepatic area. It was impossible to exclude the liver or the right kidney, which, in fact, appeared to be the most likely point of origin. Colonic insufflation disclosed the following condition: Sigmoid, descending colon and splenic flexure in their normal locations; transverse colon arched upward along the superior border of the tumor, passing between tumor and liver, thus excluding the liver as its origin; ascending colon passed posterior to the right border of the tumor into the loin, thence around below and anteriorly to the normal location of the cecum, thus excluding the kidney and placing the tumor in the central area. (Fig. 1.) As the tumor was solid and quite freely movable under anesthesia, we could eliminate everything but tumors of the mesentery and omentum. Careful examination revealed a slightly resonant band crossing over a portion of the tumor, which, the colon being outlined elsewhere, could only be a loop of small intestine, thus eliminating the omentum and reducing us to our final diagnosis—solid tumor of the mesentery. A subsequent laparotomy proved this to be correct.

In doubtful cases of tumors originating in the pelvis in the female, the colon may aid us, as in the following case:

Case 2.—Mrs. ——, aged 44 years, married, had one child at 28 years of age, and has never been pregnant since. Menstruation has always been regular. In December, 1895, she noticed the abdomen was enlarging; missed menstrual flow in May, July and August, 1896; had no trouble with her bowels or bladder; felt poorly without special complaint. In September, 1896, she presented a large tumor filling the abdominal cavity, but decidedly more prominent to right of midline and extending from the right costal arch to Poupart's ligament. Dulness extended without demarcation into the hepatic area and the right loin. To the left of the tumor there was tympanitic resonance of intestines. Tumor was apparently nodular in places, distinctly fluctuating in others. Vaginal examination found uterus normal in size and freely movable. Tubes could be made out as well as the left ovary. Right ovary could not be located. Right tube seemed to be drawn somewhat tense. The resistance of the tumor could just be felt high up. The distinct right lateral location of the tumor, which was practically immovable, and the continuation of its dulness with that of the liver above made its point of origin doubtful. Distension of the colon enabled us to decide. The sigmoid and descending colon were in their normal locations, the transverse colon arched over the superior border of

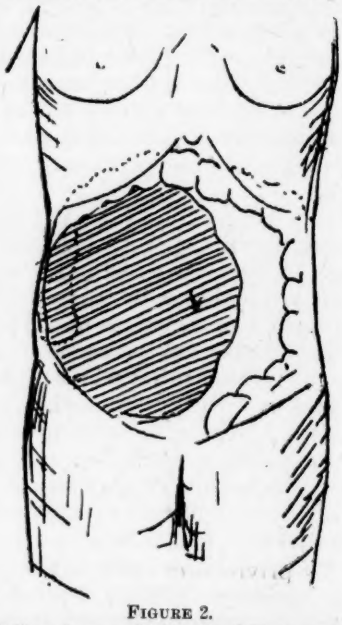

FIGURE 2.

the tumor, and the air was distinctly felt to pass between the tumor and the liver, thus excluding tumors from above. The ascending colon lay deeply in the loin, posterior to the right border of the tumor, thus excluding the right kidney. A very important point was the location of the cecum, which was found displaced upward, outward, and backward, so that it lay above and to the outer side of the anterior superior spinous process. (Fig. 2.) From these facts it was concluded that the tumor had its origin below and probably from the right ovary. Upon opening the abdomen there was found a large multilocular ovarian cystoma with a very long, narrow pedicle, so that it lay entirely outside the true pelvis. It ascended to the under surface of the liver, against which it firmly pressed posteriorly, while anteriorly, between the tumor and the liver lay the flattened transverse colon.

The displacement of the cecum and sigmoid upward and outward is of considerable importance in the diagnosis of tumors arising within the pelvis.

Case 3. — A female, aged 20 years, a virgin, had gradual enlargement of the abdomen for several months. Menstruation was somewhat irregular for a year or two, and has missed entirely the last four months. About four or five months since she began to have a little cough with gradually increasing shortness of breath. There was no expectoration, no pain, no trouble with bowels or bladder. There was dulness over entire right side of chest. The right side of chest measured four to five centimeters more in circumference than left side. The heart was displaced to the left.

Dulness was continuous with the hepatic area, which ex-

tended considerably below the costal arch, and was continuous with that of a large tumor occupying the middle and lower part of the abdomen. There was an area of dulness on each side of the abdomen, shifting with change of position.

Vaginal and rectal examination showed uterus small, high up, freely movable, and inclined slightly to the left. Appendages could not be made out. The tumor was slightly irregular on the surface, and fluctuation could not be detected. The colon was now distended with air. The sigmoid passed up behind and to the outer side of the tumor; the descending colon was in its normal location; the transverse colon arched across the abdomen with convexity downward, clearly outlining dulness above it (hepatic) from the dulness below it (tumor). The ascending colon was normal, the cecum carried upward and outward and lay above and to the outside of the anterior superior spinous process. (Fig. 3.) The location of the colon here clearly separated the tumor from the viscera above, while the displacement of the cecum and sigmoid indicated its origin from the pelvic viscera.

Diagnosis: Effusion in right pleural cavity, with displacement of the liver downward; tumor of ovary with small quantity of fluid in free peritoneal cavity.

Dr. Henrotin, whose case it was, and to whom I am

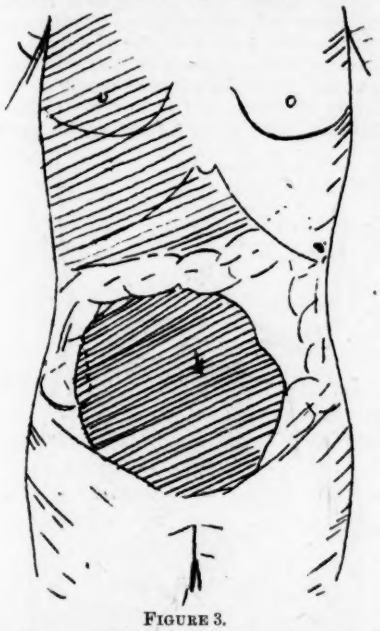

FIGURE 3.

indebted for the privilege of examining and reporting it, removed by aspiration 1600 c.c. of a clear yellowish serous fluid from the right pleural cavity, and by celiotomy, a large multilocular cystoadenoma of the left ovary.

The next case is particularly interesting as showing the diagnostic value of displacement of the sigmoid:

Case 4.—Mrs. S., aged 35, a multipara, missed two menstrual periods and supposed, of course, she was pregnant. She then had a hemorrhage from the uterus which was thought to be a miscarriage. The abdomen, however, continued to enlarge, and as she had several attacks of severe pain, went to one of the hospitals, where she was pronounced to be about five months pregnant. At the end of about seven months the abdomen ceased to enlarge, and it was thought the fetus in utero had died. After some five weeks more, during which time she suffered considerably with abdominal pains and an irregular temperature, she came into the hands of Dr. Henrotin, through whose kindness I had an opportunity of examining her. Examination: A large tumor distinctly and easily outlined filled the major portion of the abdomen. Per vaginam the right lip of the cervix was well marked, os slightly patulous, left lip practically obliterated by being spread out, as it were, over the large solid mass filling the left side of the pelvis. The uterus moved with, and seemed inseparable from, the general tumor, although above and to the right could be felt a slight notch or irregularity, which seemed to be the fundus of the uterus.

That a pregnancy had taken place seemed clear, but the exact location of the fetus was very much in doubt. Was the fetus in a normal uterus or in one side of a double uterus? Or was it an extrauterine pregnancy, and was the hard mass to the left a fibromyoma extending into the broad ligament, or simply the placenta? These are some of the questions which presented themselves. The colon was now distended with air. The sigmoid merged from the left lower lateral border of the tumor, and ascended over its anterior surface as far as the umbilicus. It then bent sharply upon itself and retraced its way to the left and posteriorly to the ascending colon, which occupied its normal location, as did all other portions of the colon. (Fig. 4.)

The sigmoid could not be displaced from its position in front of the tumor. Had sufficient importance been attached to the location of the sigmoid a correct diagnosis might have been made. A normal uterus or even a uterus bicornis would not have carried the sigmoid up anteriorly to it.

A tubal pregnancy, rupturing and developing either in the general abdominal cavity or in the broad ligament, could explain it. The obliteration of the left cervical lip with the mass filling the left side of the pelvis would have decided in favor of the broad ligament. At the operation by Dr. Henrotin an extrauterine pregnancy was found, developing in the broad ligament. The peritoneal layers were separated by the enlarging fetus, which dissected up the posterior layer and spread into the mesosigmoid, thus carrying the sigmoid up in front. The mass in the left side of the pelvis was a very large placenta.

We will now pass to tumors occupying or originating in the superior region. Here we have tumors of the liver, gall-bladder, stomach, lesser omentum, pancreas, retroperitoneal lymph-glands, etc. That tumors having their origin in this region are not always easily

FIGURE 4.

diagnosticated, is very apparent when we find by a glance through the literature that nearly every case of pancreatic cyst in the female that has been operated was erroneously diagnosticated an ovarian cyst.[3]

The diagnostic value of distension of the colon is particularly emphasized when we find that all these cases could have been correctly diagnosticated had this simple procedure been instituted, as in all of them, at the operation, the transverse colon was found to pass below the tumor.

In looking over the reported cases of cysts of the pancreas, it is interesting and instructive to note the errors in diagnosis that have been made. Among these we may mention cyst of the ovary, cyst of the liver, intestinal obstruction from fecal impaction, cyst of the mesentery, cyst of the spleen, hydronephrosis, tumor of the omentum, invagination of intestine, abscess of abdominal wall, tumor of the kidney, tumor of the spleen, ascites, aneurysm of abdominal aorta, etc., while in many cases no diagnosis before operation was attempted. These errors were made, too, by men of the highest ability. But what makes it appear all the more deplorable is the fact that in the

[3] Salzer: Zeitsch. für Heilkunde., 1886, Bd. vi, S. 11; Bozeman: Medical Record, 1880, xxi, 46; Riedel: Arch. f. Klin. Chir., 1885, xxxii, 994; Zukowski; Wien. Med. Presse, 1881, No. 45, also diagnosed by Spencer Wells and Rokitansky; Martin: Virch. Arch., No. 90.

large majority of the cases the error might have been avoided by distending, and thus mapping out the location of the colon and stomach. The pancreas lies almost entirely cephalad of the transverse mesocolon, hence, as tumors of it enlarge they displace the transverse colon downward. The value of this downward displacement of the transverse colon in the diagnosis of pancreatic cysts will depend upon the constancy with which it occurs.

I have carefully looked over the records of all the cases of pancreatic cysts I could find in the literature, with the result that in thirty-four cases it is distinctly stated the transverse colon was displaced downward in the characteristic manner; in seven cases it was carried directly forward, crossing the tumor; while in three cases the colon passed along the upper border of the tumor. The seven cases in which the colon crossed the tumor may practically be classed with the thirty-four downward displacements, as part of the tumor lay above the colon and part below. This could only occur with a retroperitoneal tumor spreading the layers of the mesocolon. In nineteen cases, although not distinctly stated, it is quite certain from the description of the operation given that the transverse colon must have been displaced downward, hence it is doing no injustice to the figures to record these cases with the thirty-four and seven, thus making sixty cases, or 95 per cent., in which the colon was characteristically displaced, and three cases, or 5 per cent., in which its displacement upward might have led to error. I say *might*, because even here the tumor had simply grown more at the expense of the inferior layer of the mesocolon, and the colon was fixed to the upper border of the tumor. This fixation itself should excite a suspicion of the probable origin of the growth. In thirty-two cases no mention whatever is made of the location of the colon, while in four cases the cysts not only depressed the colon, but also the stomach, reaching the surface between the liver and the lesser curvature of the stomach by crowding forward the lesser omentum. As illustrating the characteristic displacement of the colon by tumors of the pancreas I will mention a case:

FIGURE 5.

Case 5.—Mr. R., a German, aged 47 years, a laborer. He dates his trouble from June, 1898, when he first noticed his abdomen was enlarging. He began losing weight and strength, and applied to me in November, 1898, more on account of loss of strength than from any physical suffering. He had had some pain in the abdomen a little above and to the left of the umbilicus, but this was not marked. There had been a little nausea at times and once or twice vomiting, otherwise the gastro-intestinal functions were well performed; bowels regular and natural; urine normal. Even after test meals of large quantities of carbohydrates and sugar no sugar appeared in the urine. No free fat in the stools.

Upon examination, Nov. 14, 1898, he presented a large tumor nearly filling the abdominal cavity but extending more above than below the umbilicus and a little more to the left than right. Fluctuation was distinct, the surface was irregular, and some of the irregularities felt rather solid. Upon distending the colon it was found to encircle the lower border of the tumor, as shown in Fig. 5. A diagnosis of pancreatic growth was made, and as fluctuation was present, the abdomen was opened by an incision along the outer border of the left rectus to determine if anything could be done to afford relief. The stomach was found displaced upward, and the colon downward. The surface of the tumor was very vascular. The irregular portions were solid. An aspirator introduced into the cystic portion withdrew dark bloody fluid. Beneath the fluid were still solid portions. The growth was evidently malignant and irremovable, so nothing further was done, and the wound was closed. The wound healed, but the patient failed gradually, death occurring some four weeks later. The autopsy showed a large cystosarcomatous tumor of the pancreas. There were no metastases, and all other organs of the body were normal.

Case 6.—This case, from Heinricius,[4] is one of the rare cases of pancreatic cysts in which the transverse colon was carried upward. (Fig. 6.) It occurred in a female who was five months pregnant. It was thought to be an ovarian cyst, but at the operation was found to have its origin in the pancreas. It had spread into the mesocolon and enlarged at the expense of the lower layer. The cyst was enucleated and recovery ensued. Pregnancy continued without interruption.

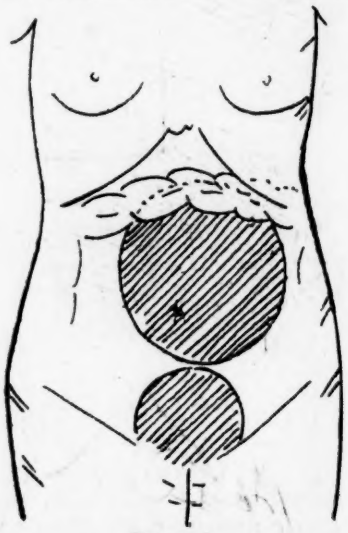

FIGURE 6.

In a case of this kind, the fact that the colon overlay the border of the tumor and could not be displaced from it should excite a suspicion of its origin.

Case 7.—This case shows the downward displacement of the colon by a tumor of the stomach. Mr. C., age 72, presented a tumor easily felt in the left side of the abdomen, extending from the umbilicus to near the costal arch. It was somewhat movable, about the size of two fists. Upon distending the colon all portions were found in their normal locations except the transverse colon, which dipped around the lower border of the tumor. (Fig. 7.) There was slight gastric resonance above and posterior to the tumor.

This case was one of carcinoma of the stomach involving the greater part of the organ, for which I did a complete gastrectomy May 17, 1897. One peculiarity of the case was the fact that notwithstanding the very extensive involvement of the stomach by the carcinomatous process there had been no gastric disturbances. He ate heartily of everything up to the day of his operation. He died on the sixth day, from

[4] Arch. f. Klin. Chir., 1897, 54-392.

double pneumonia. The autopsy showed the union of the cardia to the duodenum to be in good condition. Enlargement of the gall bladder usually depresses the right half of the transverse colon, with a tendency to overlap it and crowd it backward. If the peritoneal fold attaching the gall-bladder to the under surface of the liver be quite long and free, the enlarged gall-bladder may be entirely in front of the transverse and the greater portion of the ascending colon. The next case is an excellent illustration of this unusual condition.

FIGURE 7.

Case 8.—Miss H., age 16 years, without history of previous trouble, was taken with acute pain in the lower right side of the abdomen, with vomiting, rise of temperature, distension of abdomen and obstinate bowels. She was first seen by me about ten days after the beginning of the illness. The right

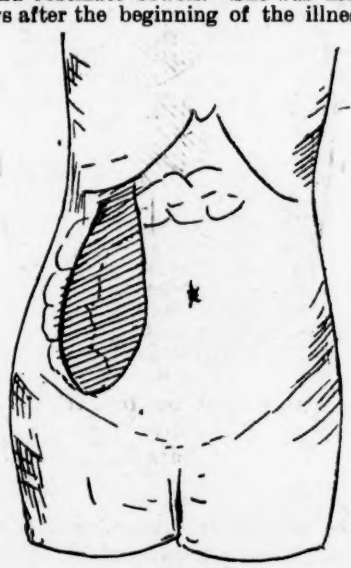

FIGURE 8.

side of the abdomen was very tense and tender to the touch. A mass was easily felt extending upward from the middle of Poupart's ligament, in the region of the cecum and ascending colon, and extending to the left as far as the right border of the rectus. Appendicitis was diagnosticated and an operation done at once. Upon opening the abdomen at the usual place, over the appendix, the mass was found to be an acutely inflamed, distended and enlarged gall-bladder. It was quite movable, owing to its very long peritoneal fold, and lay anterior to the ascending colon and cecum, the tip of the gall-bladder reaching as low as the end of the cecum (Fig. 8.) A new incision was made at the usual location for the gall-bladder, and the bladder was pushed up, opened and drained. A calculus about one centimeter in diameter was recovered from the cystic duct, which it had occluded. There was no history of previous hepatic trouble. Recovery followed.

Tumors or enlargement of the spleen affect the left portion of the transverse colon and the splenic flexure. They may thus be confounded with tumors of the pancreas, or the upper part of the kidney and adrenal. It will be observed that these tumors not only depress but carry forward the colon, being retroperitoneal, while the spleen in enlarging hugs the anterior abdominal wall. Lying, as it does, anterior to the gastro-colic omentum it overrides the colon when enlarged, this organ not only passing below but beneath the border of such enlargement.

Case 9.—Anna B., aged 7½ years, presented a well-marked enlargement of the spleen. The mass extended from the 7th rib to the crest of the ilium, and to the right nearly to the midline at the level of the umbilicus. It was probably of specific origin, and disappeared under treatment. Upon distending the colon it was found that the upper end of the descending colon, the splenic flexure and the left end of the transverse colon wer depressed but completely overlapped by the enlarged spleen. (Fig. 9.) The mass hugged the anterior abdominal wall and the colon lay beneath it.

In turning now to the external areas we find the most common tumors which displace the colon inward or inward and forward develop from the kidneys. In addition to tumors of the kidneys we find rarely cysts of lymphatic orgin, tumors of the normally

FIGURE 9.

located or misplaced adrenals and possibly tumors originating in remains of the Wolffian bodies. All tumors which displace the ascending and descending colons forward as well as inward are classed in the external areas, as they are all of retroperitoneal origin. The important questions for us are:

1. Do these tumors produce a characteristic displacement of the colon?

2. Can we correctly assign these tumors to their proper origin by noting the exact position of the colon?

The kidneys lie in the loose retrocolonic connective-adipose tissue. Movement of these organs upward is interfered with by the dense, firm organs and tissues abutting in this direction, while movement downward is almost unimpeded, hence enlargements of these organs from whatsoever cause usually move in a direction downward, forward and inward. In so doing they carry the colons, ascending and descending respectively, forward or forward and inward. Typic illustrations of this characteristic displacement are as follows:

Case 10.—R. H., a male, aged 36 years, presented a tumor of the right side, extending from the lower border of the liver nearly to the crest of the ileum and inward to about four centimeters to the right of the umbilicus. Distension of the

colon showed the hepatic flexure in about its normal location. The ascending colon then passed forward over the anterior surface of the tumor with a distinct curve toward the midline. (Fig 10). Operation proved the case one of pyonephrosis with perirenal abscesses.

FIGURE 10.

Case 11.—A female child, aged 1½ years, presented a large tumor filling the abdomen, but more prominent on the left side. The colon was outlined as follows: Splenic flexure displaced forward and inward but not downward. Descending colon displaced forward and inward, passing over the anterior surface of the tumor, with a curve to the right reaching the umbilicus. It then curved backward beneath the lower border of the tumor. (Fig. 11.) Operation proved the case one of so-called sarcoma of the kidney.

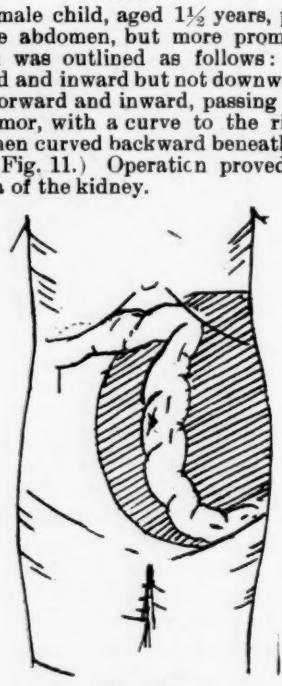

FIGURE 11.

Case 12.[5]—A female, aged 32 years, had a tumor filling the right side of the abdomen from the costal arch to the ilium, and extending very slightly to the left of the umbilicus. The hepatic flexure of the colon was in its usual position. The ascending colon passed anteriorly to the tumor with a marked curve to the left, reaching the umbilicus. The cecum, appendix and lower end of the ilium were distinctly felt spread out on the lower portion of the tumor. (Fig. 12.) Operation proved the case one of hydronephrosis.

A case of hydronephrosis displacing the ascending colon directly inward without carrying it forward is that of Loebker.[6]

Case 13.—Frau W., aged 23 years, presented a tumor filling the right side of the abdomen, extending eleven centimeters to the left of the umbilicus and fourteen centimeters above t. The case was considered an ovarian cyst and much trouble resulted from trying to remove it through a median incision before its true character was recognized. The ascending colon was found curving around the inner border of the tumor, but more posteriorly than anteriorly.

Had the location of the colon been recognized by distending it with air before the operation the errors

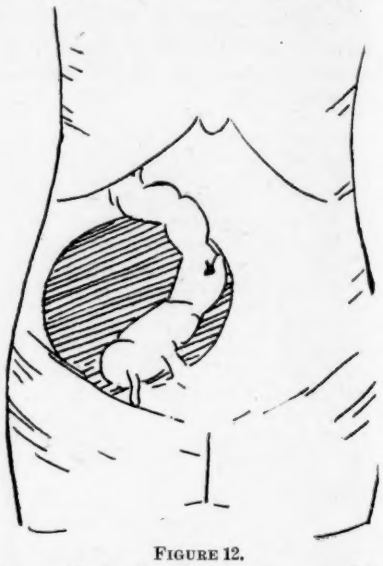

FIGURE 12.

in diagnosis and faulty operation could have been avoided.

These cases are all typic displacements of the colon by tumors of the kidneys. The value of this displacement as a diagnostic aid in tumors of the kidneys depends upon two facts, namely:

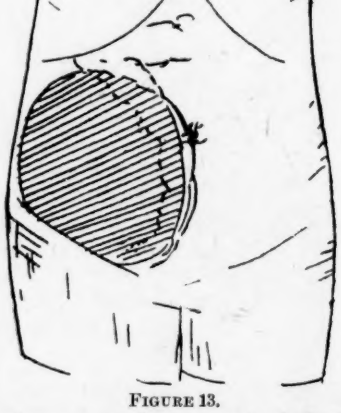

FIGURE 13.

1. May we have an enlargement of the kidney without the characteristic displacement of the colon?

2. Are there any other tumors which may produce a like displacement? I have spent considerable time and labor in searching the literature for cases bearing upon these two questions. Relating to the first question I have found the following cases:

Case 14.[6]—A female, aged 24 years, presented a round, firm, elastic tumor in the right side of the abdomen extending from two fingers-breadth above the umbilicus to the anterior spinous process, and from the right mammary line to three fingers-breath to the left of the midline. The right kidney was clearly palpable in its usual location; right ovary not to be felt. Diagnosis, tumor of right ovary. Operation, median incision. The tumor was found to be retroperitoneal and to spring from

[5] From Kehrer, Arch. f. Gyn., xviii, 371.
[6] Arch. f. Gyn., xiv, 455.

[6] Lotheissen: Arch. f. Klin. Chir., lii, 726.

the lower pole of the right kidney, to which it was attached by a small pedicle extending at right angles toward the midline. It is stated that the colon lay external to the tumor (Fig. 14). The tumor was an adenocarcinoma, with hemorrhagic cysts and psammoma corpuscles. Truly this is a most rare and unusual case.

Tumors originating in certain movable kidneys may fail to produce the characteristic displacement of the colon. A kidney may be movable up and down in the loose cellular tissue between the layers of the mesocolon remaining retrocolonic all the time, or it may move

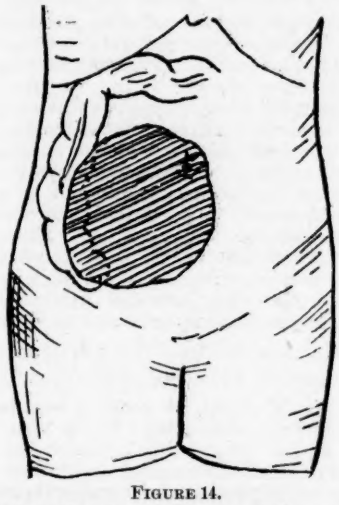

FIGURE 14.

inward, carrying the inner layer of the mesocolon forward and entirely to the inner side of the colon. In the latter case a tumor originating in the kidney would have the colon lying to the outer side, as illustrated by the next case.

Case 15.[7]—This was a case of hydronephrosis developing in a movable kidney in a female aged 47 years. It had been growing for seven years. At first it was freely movable in the right side of the abdomen but eventually became so large that it filled the entire side, extending beyond the midline. The ascending colon lay to the outer side of the tumor. (Fig. 15.)

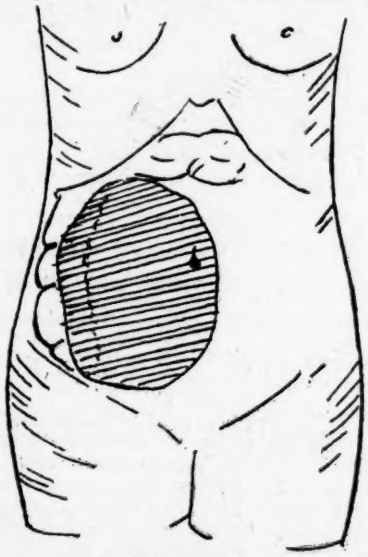

FIGURE 15.

A tumor of a movable kidney may, however, carry the colon forward, provided the kidney move simply upward and downward in the retrocolonic space as in the following case.

Case 16.[8]—Female, aged 27 years. Tumor appeared in the pelvis to the right of the uterus, which it pushed to the left. It grew upward until its upper border was near the liver and extended to the left of the umbilicus. It was diagnosticated by Ahlfeld and Credé as ovarian. At the operation it was found to be a case of hydronephrosis originating in a movable kidney. The ascending colon passed anterior to the tumor a little to its inner side. (Fig. 16.)

This was not recognized before the operation. Had it been distended with air, a correct diagnosis

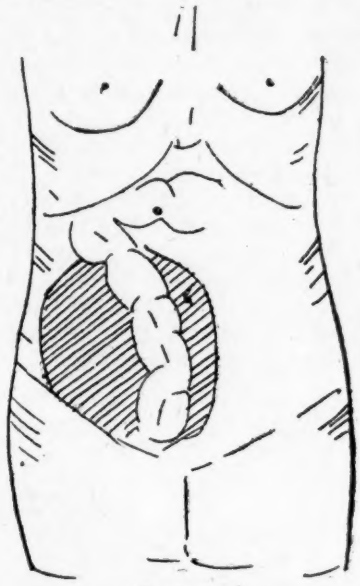

FIGURE 16.

could have been made. The second question: May other tumors than those orignating in the kidneys or adrenals produce a similar displacement of the colon? must be answered in the affirmative. I have found reported a very few retroperitoneal or pararenal serous cysts which, developing in the pararenal tissue or possibly from remains of the Wolffian body, as suggested by Przewoski, produced a similar anterior or inward displacement of the colon.

Case 17.[9]—Female, aged 43 years. Trouble began some two

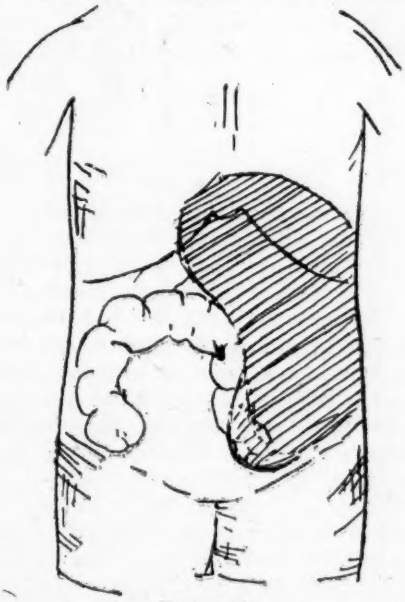

FIGURE 17.

years since, with enlargement of the upper portion of the abdomen. The epigastric region and whole left side of the abdomen became prominent, the tumor extending from the diaphragm above to the groin below and into the lumbar region behind. The tumor was elastic and fluctuated distinctly. Dulness over the entire tumor, which may be outlined as follows: beginning two fingers-breadth above the xiphoid appen-

[7] Justus Schramm: Berl. Klin. Woch., 1883, xxxvii, 571.
[8] Ahlfeld: Arch. f. Gyn., xv, 114.
[9] Pawlik: Arch., f. Klin. Chir., liii. 571.

dix, thence to right sixth rib, thence to left of midline just above the umbilicus, thence in a curved line with convexity crossing to right of midline to the symphysis, and along the groin to the crest of the ilium. The colon skirted the right border of the tumor as far upward as the umbilicus, when it passed in a curved line to the right and downward. (Fig. 17). The stomach was crowded to the right between the tumor and the liver.

The case was supposed by Pawlik to be one of hydronephrosis, notwithstanding the fact that catheterization of the ureter showed the urine from that side to be practically normal in quantity and quality. Operation proved it to be a pararenal cyst, unconnected with the kidney. Obalinski[10] describes three cases of pararenal, retrocolonic cysts found postmortem, and one case in a female aged 57 years, that he operated for ovarian cyst. The relation of the colon to the cyst in this case is not given. Péan[11] operated such a cyst which filled the left side of the abdomen, under the supposition that it was ovarian. It was found behind the descending colon, and unconnected with the kidney, which was normal.

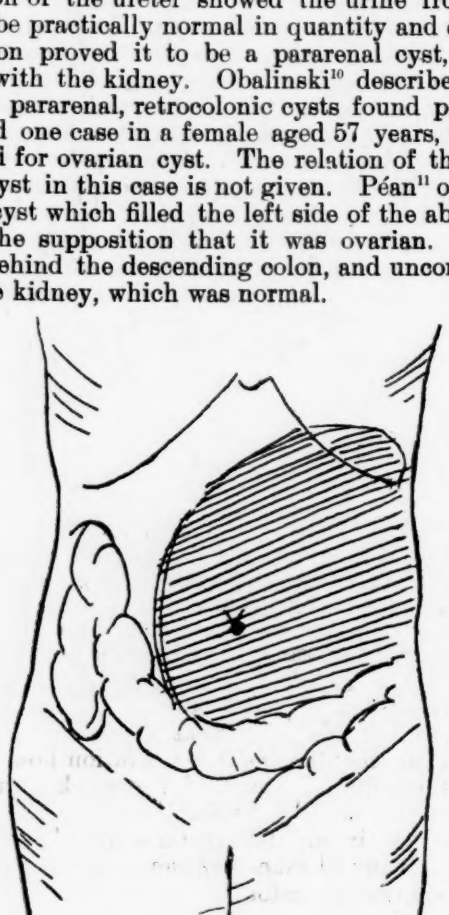

FIGURE 18.

It will thus be seen that a tumor may develop in a kidney without displacing the colon forward or inward, and that other than kidney tumors may cause such displacement of the colon; hence, the absence of colonic displacement does not exclude the kidney as the point of origin of the tumor, nor can such displacement be looked upon as pathognomonic of a kidney tumor. While this must be admitted, still the exceptions to the rule are so exceedingly rare that a tumor which displaces the ascending or descending colon forward or inward presents the greatest proba bility of having its origin in the kidney or adrenal.

Tumors of the kidney that do not displace the colon to some extent are also very rare, and have their origin either in kidneys that possessed a wide range of mobility, or else the tumors are pedunculated—a still rarer condition—as in Lotheissen's case.

Cysts of the head, or particularly the tail of the pancreas, may occupy a lateral position in the abdominal cavity, similar to that assumed by an hydronephrosis, so that these two conditions have been frequently confused. While a cyst of the tail of the pancreas may descend behind the descending colon, thus carrying it forward, it should be remembered that the characteristic and predominant displacement produced by pancreatic growths affects the transverse colon, while kidney growths affect pre-eminently the longitudinal colons, the transverse being rarely involved, and then not depressed, but carried laterally. A single rare case of a large cyst not pancreatic, depressing the transverse colon, is reported by Narath.[12]

Case 18.—A male, 52 years of age, presented a large fluctuating tumor filling the upper left portion of the abdominal cavity. It extended below the umbilicus and bulged the left loin. Inflation of the colon showed it to pass from the left side of the symphysis pubis along Poupart's ligament to the left anterior superior spinous process, thence encircling the lower border of the tumor and passing into the ascending colon in the right iliac fossa (Fig. 18). From the symptoms, including a "probe puncture," a diagnosis could not be made, but hydronephrosis was favored. A posterior incision was made, and the sac stitched to the wound and drained. The patient died, and the autopsy showed both kidney and pancreas normal. It was considered to be a lymph cyst, originating near the hilus of the kidney. The kidney was crowded upward against the diaphragm and the pancreas upward and to the right.

It is of interest to note the effect of distending the colon in a case of tumor of the colon itself.

Case 19.—Mr. M., aged 38 years, presented an abdominal tumor about the size of the fist. It was firm and possessed a remarkable degree of mobility. One could make almost a complete circuit of the abdominal cavity with it. It could be placed under the left costal arch, under the right costal arch, and from the left iliac fossa to the right iliac fossa. When allowed to assume its location without interference, it would be found not far from the umbilicus, sometimes to the right and sometimes to the left of the midline. Upon distending the colon the tumor was carried upward and a little to the left. It became quite indistinct, and the air could be felt passing through it. Operation proved it to be a carcinoma of the transverse colon, originating near its center. About 15 cm. of the colon were resected with part of the mesocolon, and the gut closed by end-to-end suture. Recovery was uninterrupted.

As a result of this study I wish to emphasize two points:

1. The great importance, clinically and diagnostically considered, of the subdivisions of the abdominal cavity as herein outlined.

2. The colon, or some part of it, bears a characteristic relation to most intra-abdominal tumors, and an accurate knowledge of such relation is of greater diagnostic importance than any other single point.

[10] Cited by Pawlik.
[11] Diag. et Traite. des tumeurs de l'abdomen: 1880. T. i, p. 282.

IRON IN INTERIOR OF THE EYE.

REMOVAL WITH A MAGNET: REPORT OF TWO CASES.

Read before the Southwestern Kentucky Medical Association, at the semi-annual meeting, held at Mayfield, Ky., Oct. 25, 1898.

BY WARWICK M. COWGILL, PH.B., M.D.
PADUCAH, KY.

Case 1.—J. T., a negro, aged 31 years, section hand on the I. C. R. R., was referred to me by Dr. D. G. Murrell, assistant chief surgeon I. C. R. R. Two days before I saw the patient he was struck in the left eye by a piece of iron. The size of the fragment proved to be 4x3x1 mm., weighing one grain. The iron pierced the cornea at its inner pupillary border, lacerated the edge of the iris slightly, and passed through the crystalline lens into the vitreous.

The eye was somewhat injected T+2. The increased tension was due to the swollen traumatic cataract. The lens was entirely opaque: V=p.l. Under chloroform anesthesia, I made a section of the cornea upward; did an iridectomy just as I would for a combined cataract extraction; cut the capsule and removed the lens nucleus, and as much of the broken down cortex as possible without doing too much violence to the eye. Then I introduced the magnet point deeply into the vitreous through the section in the cornea. Two attempts were made

[12] Arch. f. Klin. Chir., l, 763

without success, but on the third introduction I drew out the iron from the eye. A drop of solution of atropia was instilled, and both eyes closed with a roller bandage.

On the second day there was marked chemosis but no pain. The wound healed nicely, and the operation looked as if it would prove a success. However, after the third week the eye became soft, T—2, V=nil.

One month after the first operation I enucleated the eye. On opening the eyeball I found total detachment of the retina, which stretched in a funnel-shape from the O.D. to its ciliary attachment. At the former site of the lens was an encapsulated mass of pus the size of a pea.

Strict antisepsis, so far as was possible in the old R. R. Hospital at Paducah, was attempted in this operation. But the eye was inoculated with pathogenic germs in some way, either through the piece of iron or through the instruments. As the wound in the cornea and iris healed so promptly I am inclined to believe the pathogenic matter was introduced by the foreign body.

Case 2.—J. H. P., aged 26, white, an employe of I. C. R. R., was referred to me by Dr. D. G. Murrell. On June 26, 1898, nine days before I saw him, he was struck in the right eye by a piece of iron, which cut through the cornea and iris (outer quadrant), and pierced the lens at its outer edge, leaving a localized opacity at site of its passage. The pupil was widely dilated with atropia; the eye was not tender on palpation; there was no pain; eye but slightly injected; T. quite normal: V=f. at four feet. The fundus could be seen quite clearly, but I could not make out any sign of the foreign body being in the eye. As these deep wounds in the eye are made sometimes by a sharp corner of a flying particle which does not penetrate the eye, but after wounding it passes on, I hesitated in my diagnosis, thinking it safer to watch the eye for a time than to draw a too hasty conclusion.

On July 19 vision remained at counting fingers at four feet, but the eye was irritable and slightly softened (T—1). On consultation with Dr. Murrell, we decided to try the magnet on the eye. So on July 21, with the assistance of Drs. Murrell, Taylor and Fort, under chloroform anesthesia, I made an equatorial incision into the eye between the external and lower recti muscles. On the third withdrawal of the magnet point from the vitreous chamber, the iron, which weighed one grain, was brought to the opening, which had to be enlarged to allow it to be extracted. The wound in the sclera was closed by drawing the conjunctiva over it with two sutures. Seven days later the wound had healed; irritation almost disappeared and the Tn. The fundus was quite clear, except some floating particles in the vitreous. There was no detachment of the retina, V=$\frac{3}{10}$+.

He was on this day, one week after the operation, discharged from the hospital. On August 21, one month after the operation, his vision equaled 15/200. On October 24 I met this patient on the street. His eye looked as natural, full and bright as the uninjured eye. Patient said the eye was doing nicely. I had no opportunity of testing the vision on this occasion.

The magnet operation is a substitute for enucleation in cases where an eye contains a piece of steel or iron. The object we wish to attain by this operation is to preserve the eyeball. If perchance, we save an eye that retains some, or useful vision, which is not an infrequent sequence, then so much happier is the result of the operation. The magnet (small electromagnet; I have had no experience with Haab's powerful magnet) is not infallible. We can not reason that if, after the magnet point has been introduced into an eye three or four times, in as many different directions, and has not brought out the offending particle, there is none in the eye. The particle may be so entangled, encysted by exudate, or so forcibly driven into the inner walls of the eye that the magnet will not be strong enough to dislodge it. Nor when the foreign body is removed is the eye free from dangers. Suppuration or chronic irido-cyclitis may follow.

I quote two extracts from Knapp on these points (*Arch. Opth.*, Vol. xiv, p. 307): " . . . Even when the foreign body is removed the disease may progress; suppuration, or, what is more chronic, irido-cyclitis, may develop and threaten the other eye. I therefore make it a rule before I undertake to remove a foreign body from the interior of the eye, to obtain discretionary power from the patient to remove the eyeball whenever I find it advisable. I resort to enucleation without much hesitation when the wound is in the ciliary region, and the extraction of the foreign body offers even moderate difficulty, requiring several introductions of the tip of the magnet, and more probing of the interior in order to find and get hold of the foreign body."

Again, when the foreign body can not be located (*Arch. Ophth.*, Vol. xiv, p. 308): "It seems legitimate, even when the foreign body can neither be seen, nor by an exudation or a limitation in the field of vision be localized, to open the capsule of the eye in the center quadrant, introduce the point of a magnet . . . directly to the bottom of the vitreous then withdraw. In case the foreign body is not reached, a second or third attempt, cautiously probing a larger area of the interior of the eye can be made with sufficient safety; but when the foreign body then is not brought out, it is more advisable to enucleate the eye than to make further attempts, because rude dealing with the interior of the eye, even if the foreign body is at last removed, frequently enough causes cyclitis, which is dangerous for both eyes.

A successful issue in these cases is most promising when the foreign body has not passed through the ciliary zone; when it can be located in the eye; when the eye is seen early; before inflammatory changes take place, or traumatic cataract has precluded examination of the fundus.

This operation should always take precedence of enucleation in these cases, except when the eye has been so torn and lacerated by a large foreign body that any hope of saving it is out of the question, then enucleation should be done at once.

When success follows this operation how beautiful are the results. Instead of the sunken, unsightly orbit, or the staring artificial eye, we preserve the human face in all its natural appearance, and even more, in many instances, preserve an eye retaining a useful amount of vision.

415 Broadway.

CONCEALED TRAUMATIC MENINGEAL HEMORRHAGE.

Read at the Fifth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 5 to 7, 1898.

BY H. REINEKING, M.D., SURGEON C. & N. W. R'Y.
SHEBOYGAN, WIS.

The appropriateness of the title of my paper may, strictly speaking, well be questioned, for to the well-informed physician or surgeon no intracranial hemorrhage, of any considerable amount, could long remain *concealed*. I have applied the term, and shall limit my remarks, to cases in which there is absence of outward flow of blood and of fracture or fissure of the cranium, but in which the presence of a hemorrhage is usually indicated by unmistakable symptoms relating to the intellectual, sensory and motor functions. The following case illustrates so typically the usual symptomatology and course, as well as the results to be expected both under the expectant and the operative plans of treatment of this important class of cases, that I wish to put it on record, and might well offer it in lieu of any dissertation on the subject. If,

in attempting to present briefly the most advanced views on this subject, so important to the railway surgeon, I shall succeed in calling forth discussion and eliciting an expression of the experience of the Fellows present, I shall have reached my purpose.

Case 1.—C. W., a farmer, aged 54 years, of good previous health and good habits, was injured May 13, 1898, in a runaway. So far as could be ascertained, he was thrown from his wagon and struck his head on the stone curbing. He was stunned for a few minutes, then regained semi-consciousness and never afterward became fully unconscious. According to the statements of the attending physician, he acted, during the first few hours after injury, very much like a person under the excitement of alcoholic intoxication—wanted to go home, and was very unmanageable. Up to the time of being put to bed, which was nearly an hour after the injury, he seemed to have full control of his extremities. Aside from a few bruises on various parts of the body, there were two deep scalp wounds in the upper portion of the right parietal region, but no evidence of fracture or fissure of the skull was found at this or any subsequent time. The wounds were dressed and the patient put to bed and quieted by a hypodermic injection of morphia. The next morning the left side of the face, trunk and upper and lower extremities were found paralyzed, both as to sensation and motion; delirium continued, temperature and pulse were normal. The exact time at which the hemiplegia set in could not be determined.

On my first examination, two days after the injury, there was complete left hemiplegia; the pupils equal, fixed between dilatation and contraction; both eyeballs turned upward and to the right, the patient able to turn them to the left to a slight degree, but unable to hold them under control beyond a few seconds. The tongue was protruded normally. The patient was partly comatose, at other times very restless, talking incoherently. Urine and feces were mostly passed unconsciously. Temperature and pulse were slightly above normal, breathing not disturbed. The symptoms described pointed unmistakably to the existence of a clot, producing pressure over the motor area of the right cerebral hemisphere, and of sufficient size to interfere with the function of this entire area. The scalp wounds were found infected; they were, therefore, reopened, enlarged, and treated openly. A very thorough examination of the skull made at this time failed to show the least injury to the bone.

The conditions described called urgently for operative relief of the pressure, and this was promptly advised, but it was not until May 21, eight days after the injury, that full consent was obtained and the operation undertaken. Meanwhile there had not been the slightest improvement in the symptoms, showing that little was to be expected from absorption or contraction of the clot. Hemiplegia was absolute; urine and feces were passed automatically; mental condition was very irrational, with great restlessness.

In planning the operation and deciding as to the point at which I should enter the cranium, I took into consideration the length of time elapsed since the injury, which, together with the stationary character of the symptoms, made it almost certain that there would be no necessity of ligating any vessel at this time; it was also evident that an opening made anywhere over the motor area of the injured side would be certain to expose the clot. The location of the scalp wound was therefore decided upon, the wound slightly enlarged downward, and the trephine applied at a point four and one-half inches behind the external angular process of the frontal bone, and four inches above the external auditory meatus. This locality proved a favorable one for the evacuation of the clots, but subsequent events showed that for the purpose of good drainage, an opening farther back would have been even more advantageous.

The opening was made with a three-quarter-inch trephine. As soon as the button of bone was lifted, the black mass of clotted blood presented itself, showing it to be extradural. While the mass showed slight pulsation, imparted to it from underlying vessels, it did not bulge into the opening, owing probably to the length of time the pressure had existed and to the consequent loss of elasticity in the compressed structures. The clots were turned out with a small Volkmann spoon and a strong current of sterilized water from a fountain syringe. They were found to cover an area measuring about five inches antero-posteriorly and two and one-half inches vertically, and separating dura and cranium for fully an inch at the central portion of the mass. As the greater portion of this space lay below and behind the opening, the latter was enlarged in these directions with a rongeur forceps, until free access was had to every part of the cavity. Hemorrhage was slight; there was no evidence of laceration of the dura, no roughness of the inner table. It soon became apparent that there was not the slightest tendency for the brain to expand and fill the cavity, so the latter was loosely packed with iodoform gauze, the wound left entirely open, and a gauze dressing applied. After the operation the temperature, which on the day previous had been 102.2, fell at once and, after four days, was normal and remained so. Pulse, after operation 124, came down to 90 in a few hours and remained good.

The patient's mental condition began to improve almost immediately, and always kept in advance of the improvement in the functions of motion and sensation. Involuntary passage of urine and feces ceased after three days. An early sign of improvement was the return of normal action of the ocular muscles and of the pupils. Then the face resumed a natural expression, together with the return of sensation and motion on the affected side. For two days after the operation there was not the least evidence of improvement in the extremities. On the third day the patient could move the hand and fingers, on the fourth could raise hand and forearm. On the fifth day motion was first noticed in the foot, and he could raise his hand to the face. Motion in the toes returned on the ninth day, on the eleventh he lifted leg and foot slightly, and could move them freely the next day. Sensation returned slightly in advance of motion.

The intellect had by this time become quite clear, and his general condition was good. But the local conditions were not so satisfactory; the cavity had diminished but slightly, and there was a large amount of discharge of a reddish-brown liquid which was but imperfectly removed by the gauze drain. A small dressing forceps could still be passed about freely in the cavity, and could be passed backward and downward for a distance of four inches. A counter-opening was accordingly made at a point four inches behind and below the first opening, and the same distance from the external auditory canal, which brought it over the most dependent portion of the cavity when the patient was resting on his back. A gauze drain was inserted from opening to opening, and further packing dispensed with. This afforded good drainage, the cavity diminished rapidly, and healing was soon complete. Meanwhile the improvement in regard to intellect, sensation and motion had been rapid. June 9, nineteen days after the first operation, he walked about his room unaided, and soon regained the full control of his extremities. He left the hospital June 24, just six weeks from the day of injury. August 31, nearly four months after the injury, he called at my office, to all appearances a perfectly well man. The trephine openings had become filled with hard cicatricial masses, apparently containing considerable bony callus, and no tendency to hernia cerebri could be detected.

Of the clinical features of the case, the absence of dilatation of the pupil of the injured side was unusual, considering the great increase of intracranial pressure and the regularity with which it is found in similar injuries. As the *modus operandi* of the effects of intracranial pressure on the pupil is not understood, I will venture no theory for the explanation of the absence of the dilatation in this case.

The important questions which confront the surgeon in the consideration of this class of cases are: 1. Whether to operate; and if so, at what time? 2. The choice of the most advantageous point for opening the skull. 3. The method of operating, including the choice of instruments for perforating the bone.

As to the first question, whether to operate in a given case, and as to the best time for such interference, it may be said, that, with the indications and diagnosis reasonably clear and certain, the less time is lost in expectant treatment, the better will be the patient's chances, both as to immediate and remote results, provided that he is not in a condition forbidding all operative interference, or that, on the other hand, rapid improvement has not already set in. Not only will the immediate danger of fatal hemorrhage be thus removed, but the deleterious and often permanent effects of long-continued pressure will also be avoided. But on the other hand, the surgeon should not hesitate to undertake the operation, even if called at a late stage of the case, as very good results are

known to have followed on surgical measures instituted many days after the injury.

The diagnosis is, as a rule, not difficult. The symptoms will vary in minor respects, according to the location of the hemorrhage and the centers pressed upon, and must be interpreted in the light of anatomic and physiologic data and the teachings of cerebral localization. The lapse of a varying interval of time between the receipt of the injury and the onset of unconsciousness, or of hemiplegic symptoms, is one of the most pathognomonic evidences of meningeal hemorrhage, and generally indicates the extradural form. The length of this interval is in inverse proportion to the rapidity of the hemorrhage; it may be entirely wanting where the hemorrhage is rapid, or other grave lesions present, or may be unnoticeable or obscured by unconsciousness due to concussion or other conditions. When present, it serves to distinguish the attack from an ordinary apoplectic seizure. The longer this interval, the more likely is the hemorrhage to be found extradural, as the attachment of the dura to the inner surface of the skull offers some resistance to the accumulation of blood, and thus retards the onset of pressure symptoms.

Inequality of the pupils, due to the dilatation of the one on the injured side, is one of the most constant symptoms, yet too much importance must not be attached to its absence, as shown in the case just reported. The same is true of the deviation of the eyeballs upward and toward the affected side. The condition of the sensorium also varies widely: from perfect clearness of intellect, through all the shades of mild disturbance, to restless delirium and deep coma. In severe forms, the respiration is usually slow, irregular and stertorous, but may remain unaffected, even when other symptoms are very pronounced. Slowness of the pulse is another symptom of some positive value, yet the pulse may be found normal, or even increased in frequency. Hemiplegia of the arm, arm and leg, or of the entire side, generally appears in the order mentioned, and rarely affects the leg alone or in advance of the arm; as a rule it is well-marked, but is found in all grades of severity. Sufficient diagnostic data can usually be gathered, that, when taken in connection with a history of trauma and evidences of injury to the scalp or cranium, they will suffice to lead the medical attendant to a pretty clear conclusion, both as to the presence of a hemorrhage and to its situation in relation to the brain centers and to the cranium. Cases in which the symptoms are so obscure as to afford no clue as to the location of the clot are not favorable for operation, but whenever the indications are reasonably clear, the patient should be given the benefit of possible relief by surgical interference, as the opening of the skull and dura, if properly done, exposes the patient to but little risk.

As to the second question, the most favorable point for entering the skull, the surgeon must be guided by anatomic considerations, the stage of the case at which he is called, the focal symptoms present, the location of wounds of the scalp, and the requirements for drainage. In all recent cases, unless the focal symptoms point clearly to other localities as the seat of pressure, it will be advisable to make the opening at the point usually recommended in the text-books, viz., one and one-half inches above the zygomatic arch and the same distance behind the external angular process of the frontal bone. Here an opening of an inch in diameter will expose the anterior branch of the middle meningeal artery, which, in the great majority of cases, is found to be the bleeding vessel. If the dura has been separated from the bone, the artery will be found imbedded in this membrane, lifted away from its groove in the bone. If bleeding, it should be ligated with a catgut ligature passed around it by means of a small curved needle, care being taken to include as little as possible of the dural tissue. In case the artery can not be secured, packing with iodoform gauze should be resorted to. The opening is to be enlarged by means of rongeur forceps, as the necessities of the case may require. If the operation is undertaken after the lapse of several days and the pressure symptoms have become stationary; in short, when the necessity for ligating the vessel has pretty certainly passed, the surgeon will first of all be guided by the focal symptoms, and when the compressed area is large, by the other considerations above mentioned.

As to the method of operation, no strict rules can be laid down, except that it must be done under the most rigorous antiseptic precautions, with the least possible amount of injury to the structures protecting the brain. The hemorrhage must be controlled, the clots thoroughly removed, drainage whenever there is a cavity must be thorough, and the results which often remotely follow these traumas must, as far as possible, be guarded against.

There is some diversity of opinion as to the advantages and disadvantages of the trephine on the one hand, and the chisel and mallet on the other, as implements for opening the cranium. It probably matters little which instrument is used, provided the operator is thoroughly familiar with the one he uses. Personally, I consider the trephine best adapted to these cases. The dura is either found separated from the bone, so as to be protected from injury by the instrument, or, if the hemorrhage is intradural, it generally requires free incision, unless lacerated beforehand. The chief argument advanced against the use of the trephine—that of injuring the dura—has no weight, in these cases at least.

Moses Gunn, in an address before the American Surgical Association, in 1882, said: "In this connection I venture to put in a plea for the much-dreaded trephine. The operation of removing a disk from the cranial walls, performed with proper care and skill, is not an 'operation fraught with danger.' There is very little risk of injuring the dura mater with that instrument. If that membrane has not been wounded in the occurrence of the accident for which we resort to the use of the trephine, its safety from injury by that instrument may be pretty confidently assured. And while I thus defend the proper use of the trephine, I desire also to protest against the use of the chisel or gouge on the cranial walls, if the propelling force is applied by a series of blows from mallet. A single blow of the force usually required may be insignificant, bnt the result of a number of them in rapid succession must be proportionate to the aggregate amount of all the blows. Thus estimated, we may not be surprised at symptoms of concussion following its use." With the use of the rawhide mallets and improved cutting instruments, there is no doubt but that the chisel can be used with perfect safety if the mallet is used with that care and delicacy which should characterize all operative work on the cranium, while in large osteoplastic operations these instruments are simply indispensable.

Wounds of the dura mater should, when practicable, be sutured, but when the injury is such that this can not be done, a piece of gold foil, large enough to extend beyond the margin of the defects, should be inserted *between dura and cortex cerebri*. This will prevent adhesions and protect the patient against many of the remote effects of head injury. This gold foil can be prepared by annealing a number of layers of dentist's foil, may be cut into sections to facilitate introduction, and should be stiff enough only to be easily inserted. In the absence of a cavity it will be held in place by mere contact with the tissues. It should be one of the articles constantly in the surgeon's armamentarium. In recent and perfectly aseptic cases, where drainage is not required, the bone removed should be cut into chips, replaced, and the wound closed, or a trap-door-shaped flap of bone and overlying soft structures may be raised, to be put back into place after stopping the hemorrhage and cleaning away the clots. When drainage is required, it is advisable to leave the defect in the bone open, as infection and retention of discharges must above all things be guarded against, danger from this source being far more likely to occur than any subsequent trouble from hernia cerebri.

DISCUSSION.

Dr. W. W. GRANT of Denver—There are several points in this paper worthy of thorough discussion. In the first place I believe that the opening in trephining, whether for depression of the skull or not, should be as small as possible and permit the accomplishment of our purpose in operating. Not infrequently the ulterior consequence of an operation—owing to the large cranial defect—has been worse than the disease we have attempted to remedy. Epilepsy quite constantly follows firm cicatricial adhesions between the dura and the cortex, and for this reason many surgeons now hesitate, unless there are decided symptoms of compression, to operate, guided as well by the fact that many of these patients do exceedingly well and never have any bad after-consequences. I have had personal experience with a number of such cases. To prevent the formation of cicatricial tissue or adhesions, it is a question in surgery what is the best material to use, but gold foil is generally so accepted. Dr. Freeman of Denver, has been experimenting with the lining membrane of egg shell for this purpose, and he has had some satisfactory results which he reports in a recent issue of the *Annals of Surgery*. Small fractures can be better treated by chisel and mallet than by the trephine, for one may often put an elevator under the depressed portion and raise it without removing it. In this way you will minimize the danger and unpleasant consequences which result from adhesion of the tissue.

Dr. W. L. SMITH of Streator, Ill.—A few years ago I saw an operation on the head. The Doctor quotes the late Dr. Moses Gunn, who was a good surgeon in his day. I have also heard Dr. Gunn say that pus was dead or dying blastema. This statement was all right for that period. So far as making a hole in the skull where an injury is concerned, if there is not a hole already made, I believe the better plan is to use a chisel and mallet, so that we may have plenty of chance for drainage. We can not secure effective drainage through a three quarter-inch trephine hole; neither can we tie an artery if it is bleeding. So far as making pressure to control hemorrhage is concerned, I have little faith in it. I have made several operations on the head with chisel and mallet, and have not had any serious results from concussion or anything of that kind, and I believe, if we are as careful in making a hole in the head as we are in the abdomen we will have just as good results. If the Doctor had used chisel and mallet and raised the flap of bone, he would have had plenty of room for drainage, and, I think, would not have had to make a second operation.

Dr. FRED J. HODGES of Ashland, Wis.—From an analysis of the case and history related one would interpret gradual hemorrhage from a small vessel. That being the case, I do not think that the inequality of the pupils is a matter of any new or added interest, for the reason that the brain is very tolerant of pressure, when gradually applied, and if this same degree of pressure had been applied as a result of the hemorrhage from a large vessel, there would undoubtedly have then been a difference in the pupils, and the same difference in effect would have been observed in regard to the mental faculties. The mental faculties would have been entirely and quickly extinguished; whereas the pressure being so gradually applied, they were impaired rather than extinguished. I have seen the same group of symptoms produced from an extradural rupture of the superior longitudinal sinus. So even with this group of symptoms it is not safe to assume that you are going to come down on a mass of clotted blood. In a case I operated a short time ago, after making a small trephine opening in the skull, there escaped a column of venous blood at least two and a half inches in height. We waited a few seconds to see if there was a blood clot, but there was no change in the extent or force of the stream. The opening was closed, and another made farther down on the parietal with the hope of getting outside the hematoma. But that giving us the same result, a small piece of gauze was introduced from without to encourage clotting, and the scalp wounds closed. As soon as a blood clot formed the symptoms disappeared, and the patient recovered without any further interference. Bearing this in mind, it is just as well to investigate, as far as you can, the state of affairs before removing the entire button, if you use a trephine, or as soon as you make a small opening, if you use a chisel. I do not know how the case could have been treated if a large button had been fully liberated. Evidently there was a large rent in the sinus and to have controlled that through a large opening would have required considerable ingenuity.

Dr. ARTHUR D. BEVAN of Chicago—I just want to defend Moses Gunn in his definition of pus. I do not believe that any more rational short description of pus has ever been given than that by Dr. Gunn, namely: "Pus is dead or dying blastema." It certainly fills the bill even in our advanced stage of pathologic knowledge. Pus is derived from the white blood corpuscles and the embryonal cells, and although Gunn's knowledge of the more refined pathology involved in the production of pus was not up to our present data, yet I should like to defend the general proposition. In the same way, I should like to defend the use of the trephine in just such cases as the Doctor has described in his paper. I would use the trephine in preference to the chisel, because, as a rule, in cases of rupture of the middle meningeal artery we can locate approximately the point of rupture. I do not say that is constantly so, but the general anatomic rule given is fairly accurate—an inch and a half above the zygoma and an inch and a half behind the external process. A 1½-inch trephine will locate the seat of rupture in nine cases out of ten, and 90 per cent. of the cases of hemorrhage are from the middle meningeal artery. The trephine exposes a small area, and you can locate it definitely. It is covered by the temporal muscle and deep fascia, and is in a position where the loss of half an inch of bone is not as apt to result in symptoms at the end of a month or years as it would be in the upper portion of the parietal eminence, for instance, where it is not covered by the deep fascia and temporal muscle. With reference to the inability to ligate a vessel through a trephine opening, I should say that I have done this twice, having ligated the middle meningeal artery through a half-inch wound, and in another instance through a three quarter-inch opening.

I am opposed to the use of gold foil. In a case where we have to remove a small area of bone, especially where it is deeply covered by muscle and fascia, I am inclined to believe that we would be less likely to have epilepsy follow in the lapse of months or years where we had allowed the external periosteum to remain, than where any foreign body is interposed. The use of celluloid, of a gold plate, of gutta-percha tissue, has been tried in a few cases, and the results have been unsuccessful. I know of several cases where either celluloid or gold foil has been employed and it was necessary to remove it. I do not think those cases have found their way into the literature; it is the successful cases that are reported. While not wishing to consume too much of the time of the Academy, I desire to relate briefly a case which I have had recently, illustrating this class of lesions:

A man, a bricklayer, was in a shaft; his companion had been working with him. The companion left to go to some other part of the building, was gone about half an hour, and when he returned the man was lying unconscious at the bottom of the shaft. An ambulance was called; the man was brought to the Presbyterian Hospital; we examined him carefully and found no evidence of any lesion with the exception of a slight contusion on the side of the head. The urine showed sugar; a diagnosis of diabetes was made. We watched the case carefully, as one of probable diabetic coma. The patient died. Postmortem examination revealed rupture of the middle meningeal artery as the cause of the coma and death. I am inclined to think in such cases as that we would be justified in making an exploration for diagnosis. I am rather

inclined to believe from my experience with a few similar cases, that an early operation would have saved the man's life.

Dr. EDWARD DOOLEY of Buffalo, N. Y.—I was very much interested in the paper, and from the remarks made by several gentlemen I noticed a great deal of stress was laid on the danger of the adhesions that are apt to form. I recall a case that came under my observation about five years ago:

A young man riding on an engine, in jumping off, struck the top of the switch frame and sustained an extensive compound, comminuted fracture on the left side of the skull. Much of the bone was broken into small splinters, which I removed without using either chisel or trephine. I should say I removed altogether an area fully two and a half inches square, including the left parietal eminence and the bone below and in front of it. The dura was lacerated, a blood-clot that had formed was removed, the wound united with catgut and dressed with iodoform gauze. The condition of the patient was such that I was in a hurry to get him off of the table, thinking he was going to die, but to my great astonishment the young man recovered. He suffered from aphasia for ten days, but gradually his intelligence and speech returned, so that at the end of six weeks he was able to leave the hospital. The young man has been at his occupation as a switchman ever since, it now being five years since he sustained the injury. There is certainly cicatricial tissue covering the entire space over the left parietal eminence, and he has not had any epileptic seizure or paralysis.

This is an exceptional case. I do not wish to be understood as saying that it is unnecessary to use gold foil, but there are undoubtedly cases where we will not have epilepsy or paralysis, even though there be a cicatricial scar over the brain substance.

Dr. R. HARVEY REED of Rock Springs, Wyo.—There is one point I would like to refer to in regard to the Doctor's paper, and that is with reference to the instrument which is to be used in opening the skull. I have used the chisel very freely, the trephine and the DeVilbiss instrument, and I do not think that, from a surgical standpoint, it makes much difference which is used. There is an important point in the matter, viewed from a medicolegal standpoint which a personal experience of my own well illustrates.

I was once called to see a man who had been assaulted and left for dead by his assailants. He had been attended by some physicians of the neighborhood until he developed a paralysis of the right side of the face and the left arm and leg some four days later, when I was called in consultation. I recommended operation, which was agreed to. I removed a good-sized flap by means of the chisel and mallet, and over the arm and leg area found the dura bulging out boldly and without pulsation. This naturally led to the expectation of finding a clot under it, but an incision only released a little serum. Aspiration of the lateral ventricles removed about two ounces of blood and serum and allowed the brain to resume its normal relations. Wounds of the dura and scalp healed primarily, and the patient did well for a time, but two weeks later began to do badly and finally died. At the trial of his assailants, the defense assumed the position that the doctor had killed the man. In his argument the attorney said: "Gentlemen of the jury, think of this man taking a great chisel and an enormous mallet and pounding and pounding until he cut a hole in the poor man's skull three inches in diameter. Is not that enough to kill any man?" Of course the murderers were set free and I was discountenanced. Gentlemen, we are treating patients that are corporation cases, and while I feel and know that I contributed in no way to the death of this man by the use of the chisel, yet at the same time if I had used the DeVilbiss rongeur, I would have avoided the charge by the attorney of having "pounded his head with a mallet" and would have accomplished the same results. For this reason I believe that it is well to avoid the appearance of evil—at least in such cases as may eventually come before the courts—and by so doing avert trouble for the corporations for which we are working, or as in this instance, turn loose criminals whose place is in the penitentiary.

Dr. W. J. MAYO of Rochester, Minn.—I am going to ask the essayist one or two questions, which I hope he will answer in his closing remarks. The first one is this: In case the focal motor symptoms do not agree with the injury, would he go down on the focal lesion, or go on the side of the injury? I consider this an important point. In two of the three cases which I have seen, the external wound and the motor symptoms did not agree. There is no class of cases more confusing to us than these. A man sustains an injury of this kind and develops thrombosis; you cut down, open up the calvarium, and find an edematous brain, the symptoms coming on soon after the injury. I recall one case, the history of which was exactly that of the case described by the Doctor, yet it was due to a progressive thrombosis. Dr. Reineking is certainly to be congratulated on the result obtained in his case, and it is an encouragement for us to operate whenever we encounter these cases.

A good deal has been said in regard to the use of the chisel and trephine. I do not think it makes much difference which we use. My brother and myself do considerable surgical work on chronic cases of this character in two large asylums, and I should say that it is a question of choice between the chisel and trephine. I do not think the little taps we give with the chisel would make much difference. I am inclined to think that those who oppose the chisel so strongly have not used it many times. The DeVilbiss instrument is certainly a fine one to work with.

Dr. REINEKING.—In reply to Dr. Mayo's question as to where I would trephine in a case where the symptoms disagreed, the injury being on one side and the focal or pressure symptoms on the other, I should first trephine on the side toward which the pressure symptoms pointed, and if unsuccessful there and the symptoms persisted, I should not hesitate to trephine the other side also.

Dr. FRED J. HODGES of Ashland, Wis.—I would like permission to make one further remark in regard to this class of cases. Dr. Mayo touched upon one of the most important points in the whole matter when he asked the question as to the site of the operation. In the July number of the *American Journal of the Medical Sciences*, for 1894, I think, Walton, one of the senior surgeons of the Massachusetts General Hospital, in an elaborate paper, cites a number cases in which he reaches the same conclusion or lays down the same proposition as that announced by the essayist, namely, that he would operate at the site of the focal symptoms. I believe this to be radically wrong. Surgeons have gone far in advance of the physiologists. If you will consult a standard text-book on physiology, you will be reminded that the decussation in the anterior pyramids varies all the way from no decussation whatever to complete decussation. It takes a vivid imagination to make a great many reported cases conform with the generally accepted idea among surgeons that injury on one side produces paralysis on the opposite side. If you will study cases in the light of physiology, you will find that decussation is not constant by any manner of means, and the surgeon is misled in operating at the site of focal symptoms. I had a case at the time of this report which beautifully illustrated that point. The man was operated upon for epilepsy about a week after his first convulsive seizure. On examination, there was a scar found on one side of the head which he said marked the infliction of a bullet-wound eleven years previously. This was on the right side of the head, and the post-epileptic paralysis was on the right side of the body. Following the Walton rule an operation would have been undertaken on the left side; but following the common-sense rule, operation was made on the right side, when two thirds of a 38-caliber bullet was found encysted in scar tissue just within the surface of the cortex. The bullet was removed, and the scar tissue excised. It is now nearly four years since the operation was done, and the man is absolutely free from any central disturbance.

If you will gather carefully the clinical reports of skull injuries, you will find that it requires a vivid imagination to make the clinical history correspond with the idea of invariable decussation, and for the best of reasons—it does not exist.

While an interne in Cook County Hospital in this city, a man was brought in with fairly well-marked focal neurologic symptoms following an injury to the head—an injury that was not easily localized externally. A surgeon of this city, who has given a good deal of attention to brain surgery, cut down upon the supposed point of pressure and found nothing. He needled the brain in various directions with the same results. We had the gloomy satisfaction the following day of discovering a large clot on the opposite side of the head. The clot was on the same side as the paralysis. The proper explanation occurred to none of us at that time. Now I am certain that it was a case in which there was no decussation. Surgeons can not safely go in advance of the physiologists. The site of the injury is a safer, more rational guide to operation than the localization symptoms.

Dr. R. HARVEY REED of Rock Springs, Wyo.—The remarks of Dr. Hodges recall a case which to me was a very odd and interesting one, and which I will report briefly:

A miner was struck on the top of the head by a falling rock, which inflicted an extensive compound comminuted fracture of the skull. I did not think he would live, but felt it my duty to go ahead and do the best I could, so I removed an area of bone, perhaps 2½ x 3 inches, that was completely comminuted. The dura mater was lacerated apparently by almost every piece of bone, and in addition the brain substance itself was crushed. I should say that I removed from that patient

brain substance to the quantity of at least half an ordinary teacup, and it oozed out for some little time after operation. Being an infected wound, I packed it and allowed it to heal by granulation. To my utter surprise, on the fourth day after the operation, the man got up and went out of the hospital without a single symptom of paralysis, notwithstanding that the injury was immediately over the leg and arm area. On that day he walked four miles in looking up witnesses for a lawsuit that was to come off the next day. I supposed that if he did not die from the injury he surely would from the effects of so great an exertion. However, he remained in the hospital about two weeks, the wound healed rapidly, and he got well without any paralysis whatever. If we had any fear whatever of the formation of cicatricial tissue, we certainly would have it in a case of that kind. After leaving the hospital he resumed work for a considerable time, and was afterward run over by the cars, the leg and arm taken off, and the last I heard of him he was still living.

Dr. REINEKING (closing the discussion)—I purposely did not speak of depression or depressed fracture as indications for operative interference. I discussed cases presenting evidence of intracranial hemorrhage. Personally, I do not recommend the use of gold foil unless the dura mater is lacerated so that it is not readily sutured. I had a very happy experience with the use of gold foil between the dura and cerebral cortex, in a case of epilepsy. The man had as many as three attacks a day, and as many as fifteen or sixteen during the year, and since relieving the adhesions which bound down the cerebral cortex to its coverings and protecting him against further adhesions by the use of gold foil, thick enough to prevent adhesions, the seizures have completely ceased. It is now (October, 1898) eighteen months, since which time he has had no attack whatever. Shortly after the operation he had two slight attacks. I am afraid of adhesions between the dura and cerebral cortex. If we investigate the literature of operations for epilepsy, we will find it occurs where the adhesions and cicatricial tissue were beneath the dura.

In such a case as the gentleman from Buffalo (Dr. Dooley) cited, there was no occasion for using gold foil. I am not surprised that his case did well. We have all seen similar cases. It makes little difference how large the defect in the bone is as long as the adhesions are not deep. Even where they do exist epilepsy will not invariably occur any more than will nerve injuries be invariably followed by a neurosis or paralysis. In the case in which I placed gold foil between the membranes, a skiagraph was taken about a year and a half later, and it showed the plates in position. The defect was large, and the foil, which was flexible, was inserted in four sections. The man has brightened up mentally, has been relieved of epilepsy, and certainly the case is one to make a surgeon a little enthusiastic in the use of gold foil. I am free to confess that I am an enthusiast on this subject. In cases where there is fracture or depression, I would use chisel and mallet, a gouge, or a DeVilbiss forceps, but in cases of simple hemorrhage without depression or fracture, I think a trephine is the nicest instrument. With it we remove no more than is absolutely necessary; we can enlarge the opening and do it well with a rongeur forceps. The size of the opening is no argument, and it was advised in my paper to enlarge the opening in accordance with the indications. In the case I reported, the bad drainage was not due to the use of the trephine, but to the location of the opening. If it had been made at the most dependent portion of the cavity, the drainage would have been good with the trephine opening, and with a single one. That was the sole occasion for making a second opening.

As I have previously remarked, many of these severe injuries will recover without the use of gold foil; but we never know which are going to be the bad cases any more than we know about injuries to the nerve trunks, etc., and we had better adopt the precaution of using gold foil. Sufficient clinical experience is on record, as evidenced by the cases of Roswell Park, Estes, and others, that the gold foil can be used with satisfactory results. I would not recommend its use in infected cases, because the first consideration must be thorough drainage and good antisepsis; neither would I make a bone flap or expose the bone chips in cases where the scalp is infected, as it was in my case. I thank you for the free discussion of my paper.

Acne Rosacea.—Jadassohn applies the following salve with massage at night, after washing the face in hot water with soap or borax if there is much greasy secretion: Ichthyol 1 to 5 gm., resorcin 1 to 3 gm. adip. lan. 25 gm., ol. oliv. 10 gm., aq. ad. 50 gm. Wash off in the morning with hot water and afterward with spirit.—*N. Y. Med. Woch.*, January.

THE ACCOMMODATION.

Read before the Chicago Academy of Medicine, Jan. 13, 1899.

BY J. G. HUIZINGA, M.D.

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Accommodation is that function of the visual organ whereby it is able to adjust itself so that rays of light coming from different distances may all be focused upon the retina consecutively. In other words, it is that power of the eye whereby the refraction of the organ may be increased or decreased within certain limits at will.

"The contraction of the ciliary muscles causes the zone of Zinn to advance, and thus diminishes the traction exerted by the latter upon the crystalline. The lens, abandoned to itself, assumes the form which the elasticity of its fibers naturally gives it, and becomes more convex, especially its anterior surface.

"When the innervation ceases, the ciliary muscles are relaxed; the ciliary processes become tense, and stretch the zone of Zinn, which, in turn, flattens the crystalline by exerting upon it a traction in the direction of its equator." Thus during a large portion of our lives the lens is compressed and cramped into a shape that is not natural to it. The result is that the lens ultimately assumes that shape which it would possess when the zonula is in a state of maximum tension. Any relaxation of the zonula at this time will have no effect upon the form of the lens because the lens fibers have gradually accommodated themselves to the conditions imposed upon them.

Another result of this tension of the zonula is that the lens "changes in its constitution." The peripheral layers of the crystalline being compressed and more dense increases their index of refraction, so that in the latter years of life, the index of refraction of the nucleus and the peripheral layer is very nearly alike, and the lens becomes more and more homogeneous as age advances.

The difference between the refraction of the lens with the zonula tense and its refraction with the zonula relaxed is the measure of the range of accommodation. The normal range of accommodation is a very vague term, and may signify almost anything. What is normal in one case may be abnormal in another, and vice versa. But while this may vary considerably in different individuals and at different ages, there ought nevertheless to be, what, for want of a better term, we may call, a proper range of accommodation, and where this is deficient it must be supplied by artificial means, i.e., convex lenses.

By the *proper* range of accommodation we mean that condition of ciliary muscles and lens in which the action of the former combined with the inherent elasticity of the latter is sufficient to change the refraction of the eye to such a degree as is necessary to meet all the requirements of vision in the discharge of the particular duties of the patient without requiring the muscle to expend more than two-thirds or three-fourths of its strength and endurance. It is possible for a patient to have a *normal* without a *proper* range of accommodation. For instance: a man 29 years old whose normal range of accommodation is equal to 7 diopters, but who is hyperopic to the extent of 3 diopters, and who, in the discharge of his ordinary duties, requires 4 diopters of accommodation, is obliged to use constantly his entire accommodation, consequently, the ciliary muscle must con-

tract to its maximum extent, which it is possible to do only for a very limited time. Again, take a child 10 years old, whose range of accommodation is normal—about 14 diopters—who is also a hyperope to the extent of three diopters and requires 4 diopters of accommodation to do her work, or in other words, who must use, more or less constantly, 7 diopters of accommodation. While the conditions are practically the same, as in the case of the man, she only uses one-half of her range of accommodation, and thus only one-half of the strength and endurance of the ciliary muscles are required. The child is able to go about without suffering any inconvenience from her hyperopia, while the man is constantly handicapped. In both, the range of accommodation is normal, but the man does not have the *proper* range while the child does have it.

Anomalies of accommodation may result from the following causes:

1. From irregularities in the length of the zone of Zinn. The investigations of Priestley Smith have demonstrated the fact that the length and symmetry of the zonula may differ very much in different individuals. If it should be longer than normal, the lens would naturally assume that shape which the elasticity of its fibers will give it, even when the ciliary muscles are relaxed to a certain extent. It would be influenced less by any contraction of the ciliary muscles, and the range of accommodation would diminish proportionately. Or, if it should be shorter than normal, the lens would necessarily be compressed all the time to a certain extent, and any relaxation of the ciliary muscles can then only partially accomplish that which they ought to. Its effect upon the range of accommodation would be quite similar to the above.

2. The range of accommodation depends upon the strength or weakness of the ciliary muscle. This muscle, like every other one in our body, is influenced by a weak or debilitated condition of the system. It may have the necessary strength to give the patient, for a limited time, the normal accommodation to which he is entitled, but its power of endurance is more or less diminished. The term "accommodation asthenopia" should be applied only to such cases, and not as is often done, to an inability of the accommodation to overcome high degrees of hyperopia, because in these latter cases the ciliary muscle is not usually in an asthenic condition. It is often stronger and better developed even than in the normal emmetropic eye. To determine whether this muscle has sufficient power and endurance it is necessary to ascertain the proper range of accommodation. If this is sufficiently great to meet all the requirements of ordinary work, we must next determine the endurance of the muscle by requiring the patient to read continually for at least three-quarters of an hour, holding the book or paper at such a distance from the eyes as will call into action at least two-thirds of the total range of accommodation. If the muscle is normal in strength and endurance, the patient will meet this test without any inconvenience whatever, but if not, he will soon lay aside his work with the expression that the words seem blurred after the eyes are used a few minutes. This blurring is simply a relaxation of the ciliary muscle because it had become tired out, allowing the lens to temporarily assume the same shape and position that it would if it were under the influence of a cycloplegiac. The muscle has become exhausted, and it is impossible for the patient to accommodate at all until it has rested for a longer or shorter time. This condition is usually found in such patients as are suffering from a general debilitated condition of the system as the result of some disease, malnutrition, or deficient excretion of poisons generated in the body. Their treatment, therefore, should be general as well as local, and while we may prescribe a weak convex glass temporarily for such patients, it is only to assist them until this muscle, with the rest of the system, has again returned to its normal condition.

3. In the third place the range of accommodation depends on the density of lens. The density of the crystalline varies at different periods of life. At an early age its consistency is nearly the same throughout the whole substance, but in advanced years there is a difference between the deeper or more central portions of the lens and those at its exterior. There is no abrupt transition between these parts, and the condensation appears to be due entirely to the absence of metabolic changes in the interior. The lens is nourished only by intercellular transmission of fluids, and the condensing process consists mainly in a loss of water." This hardening commences in childhood and is not completed till old age. The investigations of several different authorities, however, have demonstrated that the index of refraction of the lens in different persons may differ considerably. This difference can result from only two causes: 1, from a change in the physical condition of the lens; 2, from a change in its density. Of these two the second is most probable. The more dense a body the less compressible it is, is a law in physics. Apply this law to an unusually dense lens and we would expect that our relaxation of the ciliary muscles would not compress the lens as much as it ought to. The reverse would follow in a lens that is less dense than normal. So that both of these conditions, increase or decrease of density of the lens, would be followed respectively by decreased and increased range of accommodation.

4. In the fourth place, the range of accommodation depends on the elasticity of the lens. It has already been stated that a gradual and progressive loss of the range of accommodation is a normal accompaniment of increase of age. Since the elasticity of the lens differs at different periods of life, it is possible that it may vary in different individuals to a certain extent. This has been affirmed by some, and to this condition the term "pre-senility of the lens" has been applied. If there is such an undue loss of elasticity, its effect upon the accommodation is quite evident. With the contraction of the ciliary muscles, the lens will fail to respond as much as it would otherwise, and presbyopia would appear unusually early.

5. In the fifth place, the range of accommodation depends on the index of refraction of the lens.

The measuring of the index of refraction of the lens is an exceedingly difficult piece of work, and the possibility of error must not be overlooked. Yet a careful study of the literature on this subject would lead one to believe that the index of refraction of the lens may differ to a certain extent in different individuals. That it does differ at different periods of life is generally accepted. What, then, will be the effect of a difference in the refractive index upon the accommodation? This can best be illustrated by comparing two lenses exactly alike in every way except in their indices of refraction, both during accommodation and its suspension. In the table at the end of this article

such lenses are compared, both with reference to their index of refraction and their size. For illustrating this it is necessary to assume that during accommodation the transverse diameter of the lens diminishes a certain amount, which we have taken to be 1.25 mm. The table gives first the measurements of four lenses whose radii of curvature are exactly alike and whose other dimensions are made to correspond to a perfectly formed lens. The only difference between lenses Nos. 1, and 2, and Nos. 3 and 4, is in their indices of refraction. With an index of 1.4371 the range of accommodation of lens No. 1 is 7.63 D., while the same lens with an index of refraction of 1.40 (marked lens No. 3 in the table) has only a range of accommodation of 4.98 D., making a difference of 2.65 D. in the range of accommodation, due to only a slight difference in the index of refraction. This is still more marked in the case of the smaller lens, where the difference in the range of accommodation equals 3.82 D.

From this we may deduct the law that the range of accommodation increases with the increase of the index of refraction and decreases with its lessening.

6. The range of accommodation depends on the size of the lens.

The size of the crystalline lens differs at different periods of life as well as in different individuals of the same age. The great range of accommodation in children has generally been attributed to the increased elasticity of the lens during this period, but a glance at the table at the end of this article will show that part of this may be due to the smallness of the lens. The range of accommodation of lens No. 1 is 7.63 D, while that of lens No. 2 is 10.6 D., giving the smaller lens nearly 3 D., more of accommodation than the larger one. The reason for this is as follows: The volume of both lenses remains the same under all conditions and their transverse diameters are equally reduced during accommodation, but the curvature of the surfaces of the smaller lens and consequently its refraction increases correspondingly. From this table we may formulate the rule that the range of accommodation decreases with an increase in the size of the lens, and vice versa.

	Accommodation at rest.			
	1	2	3	4
Transverse diameter	10 mm.	8 mm.	10 mm	8 mm.
Antero-posterior diameter	4 mm.	2⅔ mm.	4 mm.	2⅔ mm.
Radius of curvature of anterior surface.	10 mm.	10 mm.	10 mm.	10 mm.
Radius of curvature of posterior surface.	6 mm.	6 mm.	6 mm.	6 mm.
Index of refraction of lens	1.4371	1.4371	1.40	1.40
Index of refraction, aqueous and vitreous	1.3365	1 3365	1.3365	1.3365
Refraction of lens	D19.72	D19.82	D12.52	D12.58

	Accommodation, Active.			
	1	2	3	4
Transverse diameter	8¾ mm.	8¾ mm.	8¾ mm.	6¾ mm.
Antero-posterior diameter	4 11/16 mm.	2 13/16 mm.	4 11/16 mm.	2 13/16 mm.
Radius of curvature of anterior surface	6 mm.	6 mm.	6 mm.	6 mm.
Radius of curvature of posterior surface	4 25/32 mm.	4 1/16 mm.	4 25/32 mm.	4 1/16 mm.
Index of refraction of lens	1.4371	1.4371	1.40	1.40
Index of refraction, aqueous and vitreous	1.3365	1.3365	1.3365	1.3365
Refraction of lens	D27.38	D30 46	D17.50	D19.36
Range of accommodation	D 7.63	D10.60	D 4.98	D 6.78
Difference in range of accommodation due to difference of lens	D 2.97	D 2.97	D 1.80	D 1.80
Difference in range of accommodation due to difference in index of refraction	D 2.65	D 3.82	D 2.65	D 3.82

DISCUSSION.

Dr. WILLIAM H. WILDER—This is an interesting topic to the physiologist as well as to the specialist, and also to a certain extent to the general practitioner. I wish to concur with the essayist as to the importance of duly considering the general condition of the patient in certain so-called cases of accommodative asthenopia. Too often the specialist is imbued with the idea that his chief function is to correct refractive errors and prescribe glasses. He is liable to see everything through a pair of glasses, and is disposed to correct every error of a refractive nature. Very often we find the chief cause of the patient's asthenopic symptoms is his depraved general condition, and many so-called cases of accommodative asthenopia more properly belong to the general practitioner or nerve specialist than they do to the ophthalmologist, because this trouble is so frequently due to fatigue of the ciliary muscle rather than to any real impairment of the function of accommodation. Such fatigue of the ciliary muscle my be dependent largely upon impaired nutrition, or it may be due to neurasthenia. That the power of accommodation depends directly upon the refractive index of the lens together with its elasticity, and also upon the strength of the ciliary muscle, is a well-established fact, but with the data before us, I should be disposed to question the last proposition of the essayist, namely, that the range of accommodation is directly dependent upon the size of the lens.

Dr. HENRY GRADLE—Claude Bernare, who was a great philosopher as well as a remarkably ingenious experimenter, says in one of his recent writings, in regard to the interpretation of certain experiments, that it is not so important to explain how these things might happen as to show how they really do happen, and I think that this criticism applies too to the paper of the evening. The Doctor has brought forward interesting data, but they are largely hypothetic. The measurements which we have concerning the size of the lens, are all fragments that were collected by different persons at different times under different circumstances, and we have yet to determine in a single given case all data concerning one eye. It is an impossibility to do this with our present means. We do not know how far those various conditions that he specified apply to the variations in the range of accommodation as we meet with it clinically. There is one point which he has not sufficiently pointed out, and which may render useless the most patient calculations, namely, the compensatory arrangement so often found in the eye. In absolute emmetropia the radius of curvature of the cornea is by no means the same in different persons. It may vary considerably in a given case. In hypermetropia or myopia we find almost as large a variation in the radius of curvature of the cornea as we do in absolute emmetropia. Yet a given refractive condition can exist because the deficiency (or excess) in the refractive power of the cornea is compensated for by the opposite condition in the lens, be it due to the curvature of the lens surface, to the location of the lens or its distance from the cornea, or be it due to the variations in the refractive index of the lens. The refractive index of the lens, moreover, varies from periphery to the center, and the law of increment does not seem to be the same for all individuals.

Dr. HAROLD N. MOYER—I want to call attention to one point made by Dr. Wilder and emphasized by Dr. Gradle, namely, the confusing clinical data often furnished by patients. A large number of patients with refractive errors suffer from eye-strain, headache, which they attribute to injury or accident, and prior to which they never had any difficulty with their eyes. An examination shows a refractive error that has existed since early life. The injury has impaired the muscular power for accommodating; this being superadded to a general neurasthenic state, refractive errors which were latent cause symptoms.

The physician, in dealing with the general subject, does so from the standpoint of pure optics. He must remember that he is dealing with living tissue, not only are there muscles but also nerves that are concerned in this process. The disturbances which lie behind refractive errors are frequently as elusive as those which underlie the pathology of neurasthenia and hysteria.

Dr. WILLIAM L. BALLENGER—Dr. Huizinga's paper is only intended to be suggestive. We know that the lens in the living tissue refracts rays of light. We know that a lens made of vitreous substance, as glass or other material, also refracts rays of light. So far, the analogy is true. The essayist compares two lenses with reference to their refraction both during accommodation and during its suspension. Their indices of refraction and radii of curvature are exactly alike; the only difference between the two is in their size or volume. He finds that with the transverse diameter of both lenses equally

diminished, as during the act of accommodation, the radii of curvature of the smaller lens changes more than that of the larger. Therefore the refraction of the smaller lens increases more as a result of accommodation than the larger, and the range of accommodation is correspondingly increased. The size of the lens must have something to do with its range of accommodation, and as I understood the essayist, his intention is to raise that question in the minds of those present, so that they may bear it in mind, and, if possible, make due allowance for it in their clinical work. Oculists can not, for instance, demonstrate the exact power of the ciliary muscle, nor do they always take into account corneal imperfections. They presume there are cases in which there are certain differences in muscular power, etc., and they try as nearly as possible to make allowance for them in their work. Their allowances are based upon hypotheses, and somewhat upon clinical experience.

While the paper is not in the nature of an exact demonstration, it offers a valuable suggestion, and one which in future will, perhaps, influence the work of the ophthalmologist to the betterment of the condition of the patient. We all know how unsatisfactory the work of the ophthalmologist is in refraction. No one knows it so well as the ophthalmologist himself. On account of the lens and other parts of the eye being a living organism, instead of a mechanic apparatus, it is difficult for ophthalmologists to make due allowance for the varied conditions and compensatory phenomena that are supposed to exist in it. But the little knowledge they have of these varied conditions aids them in arriving at more correct conclusions, and the more they add to this knowledge the better will be their work. The science of optics of the human eye is not yet perfected, and anything which leads the way to the betterment of this science should be hailed with pleasure by the profession. I wish, therefore, to thank Dr. Huizinga for his very valuable paper, and to express the hope that he will pursue his investigations and reduce his hypothesis to a scientific demonstration. Faraday did not demonstrate the principles of what is now known as electric faradization. He was only a prophet of what was to be in the future. His work was hypothetic, but was very valuable nevertheless.

Dr. HUIZINGA (closing the discussion)—Dr. Wilder spoke about asthenopia being due largely not only to the general condition of the patient, but to the condition of the ciliary and other muscles of the eye. I recall the case of one of my first patients treated years ago, which illustrated this forcibly. I refracted him perfectly, each eye separately, but he did not get along very well. He returned after two weeks for another consultation, and as an experiment I gave him some nux vomica in ascending doses, and at the end of a few weeks he returned, saying that he had thrown away his glasses and had entirely recovered. Since then I have followed this method of treatment in a large number of cases of asthenopia of the ciliary muscle. (Here Dr. Huizinga explained the size of the lens by reference to charts.)

With reference to Dr. Gradle's last question, why the accommodation tires more easily in old than in young people, even when only a certain fraction of it is called into use, my answer is as follows: With the accommodation suspended, the lens is flattened and its fibers are forced to maintain an unnatural and cramped position. There is a constant effort on the part of these fibers to overcome this restraint. This tendency is in direct proportion to the elasticity of the lens. The result is that there is a constant tension exerted through the zonula upon the ciliary processes. This drawing upon these processes is a constant encouragement for the ciliary muscles to contract, and when only a slight enervation takes place the muscle immediately responds and is materially assisted by the great elasticity of the lens in young people. This assistance diminishes progressively with the age of the patient and the loss of elasticity of the lens, so that in an old person the muscle is obliged to do practically alone that which it formerly did with the assistance of the inherent elasticity of the lens. We would therefore expect this very delicate muscle to become more easily fatigued in old than in young persons.

DISSIMILAR EYES.

BY NORBURNE B. JENKINS, M.D.

KNOXVILLE, TENN.

Many persons have considerable difference in the size and conformation of the eyes. The external measurements of one eye may differ from those of the other. One eye only may be perfect. Both eyes may be imperfectly formed, the imperfection of one eye differing in degree or in nature from that of its fellow. The combinations met with are numerous and varied. Occasionally one eye sees distinctly only distant objects, while the other is of service only for near vision. Often one eye is used for both near and distant vision, the other eye being used but little or not at all. A considerable difference sometimes exists until late in life without affecting the vision or comfort. On the other hand, slight differences frequently cause strabismus, amblyopia and asthenopia early in life.

The above condition is called "anisometropia." The reasons advanced for the frequent failures to correct it with lenses are herewith given. This one is taken from Fuchs' "Text-Book of Ophthalmology:" "The obvious course to pursue would seem to be to correct the anisometropia by ordering different glasses for the two eyes. Nevertheless, this measure in most cases proves impracticable. If the difference between the two glasses is somewhat great, the patients complain of an unpleasant sensation in the eyes, of vertigo, headache, etc., and lay the glasses aside. This fact is explained in the following way: Glasses alter not only the distinctness but also the size of objects. This is enlarged by convex and diminished by concave glasses, and the more so the stronger the glass is. With different glasses the retinal image of the same object is altered in size, more in one eye and less in the other; the images then no longer match one another, and can not be perfectly superimposed. We therefore prefer in anisometropia either to give the same glasses for both eyes, or to correct only one eye and place a plane glass before the other. In doing this we always have regard to the better eye, namely, the one which appears more efficient for the purpose in view (distant or near vision)."

In regard to this theory the following are offered: A convex lens magnifies objects and corrects hyperopia. A concave lens minifies objects and corrects myopia. A given person has in the right eye a myopia of 3 D., and in the left eye a hyperopia of 2D. Without lenses an object appears larger to the myopic eye and smaller to the hyperopic eye than to an emmetropic eye. If perfectly fitting lenses are used, the retinal images of both the myopic and the hyperopic eye are made the same size as the retinal image of an emmetropic eye.

Of frequent occurrence are analogous cases to this: A given person has a total hyperopia of 4D. in each eye. He wears with comfort, R.E.+ 1.75S.; L.E. + 3.25S., notwithstanding there is considerable difference in the power of such lenses, while the total error of refraction in either eye is the same.

Another explanation found in some of the text-books on the eye is this: "Owing to the wide difference in the refraction of the two eyes, only one eye, the less ametropic, is used for vision. The retina of the other eye has not been accustomed to clear images, consequently a glass which entirely corrects the error of refraction will not be tolerated. In these cases the less ametropic eye should be fully corrected and the more ametropic eye should be partially corrected, fitted with a plane glass, or given a glass of the same focus as that worn on the less ametropic eye."

The foregoing is probaby founded upon the observation of imperfectly refracted eyes in which, in addition to myopia or hyperopia, there is astigmatism. It is probable that, with the methods laid down in the text-books, such errors of refraction can not be corrected to any degree of certainty.

After cataract operations the best obtainable retinal images are tolerated. Often persons with high degrees of ametropia pass many years of their lives without the retinæ receiving clear images. When the errors of refraction are perfectly corrected, such persons experience no inconvenience from too distinct vision.

When the axis of the astigmatism is estimated to within three degrees, and the susceptible ametropia corrected to within 0.25D., there is probably nothing to prevent an anisometrope using both eyes simultaneously for near or distant vision.

NOTE. Deformity ametropia, i. e., astigmatism of more than 3.5D., myopia of more than 7D., and hyperopia of more than 7D., have not been considered in the above article.

TYPHOID FEVER.

ITS DIAGNOSIS AND TREATMENT.

Read before the Baltimore County Medical Association.

BY H. S. JARRETT, M.D.

TOWSON, MD.

The subject of my paper is familiar to all, and I sincerely hope my humble efforts will at least be the means of bringing out a discussion of this very important subject, so that we may gather to ourselves even one point that will aid us in the future management of this dreaded and treacherous disease. My experience leads me to believe that we should *do more than do nothing* in typhoid fever cases, and treat the disease with antiseptic remedies. When called to a case of fever I always prescribe quinin and calomel, and if the fever does not yield to this treatment I consider the case as suspicious, and immediately change to an antiseptic, having already gotten the good effects of the calomel and preparing my patient for further treatment, which will be given later.

Obraztsow calls attention to the value of palpation of the ileum and mesenteric ganglia in the diagnosis and prognosis of typhoid fever. For the past four years he had observed, in examining the right iliac fossa, in cases of typhoid fever, that in 60 per cent. of the cases an intestinal loop can be felt beyond the cecum, about the size of the index finger, of varying consistence and at the level of which pain and gurgling were localized. Autopsy verified the author's belief that the loop was none other than the terminal point of the ileum, where it joined the cecum, and clinical observation has shown that the larger and more painful this loop the graver the prognosis of the case. The absence of this loop does not exclude typhoid fever.

As the palpation of these points is often rendered difficult by the sensitiveness and swollen condition of the large intestine, it will be seen that the greatest delicacy of touch is required. The diagnosis is often difficult, especially in children, as the symptoms are never as well marked as in adults.

You have feelings of malaise, which are often accompanied by a chill or chills. There is headache, dulness and listlessness, general soreness and chilliness, sometimes epistaxis, often diarrhea; sometimes moderate abdominal tympanites, with tenderness and gurgling in the right iliac fossa; and the tongue presents a thin, whitish coat, not extending to the tip and edges, which may be rather red. All or only some of these symptoms may be present, but are hardly pathognomonic, as many of them may be present in the early stage of other febrile affections. In the temperature, however, we find an important aid to diagnosis—that terrace-like rise from morning to evening. If, in addition to the above systemic symptoms, the temperature rises steadily from day to day and from morning to evening, and reaches 103 to 104 degrees by the fourth day, there will be little reason to hesitate as to the diagnosis. By this time the fecal discharges will begin to exhibit the characteristic light yellow color and pea-soup consistency. By the end of the first week the temperature will have reached the maximum point, which it is likely to hold during the disease, and the stage of invasion may be considered as at an end.

From the end of the first week the temperature pursues a pretty steady course from the highest point, rising from morning to evening and falling from evening to morning from one to two and one-half degrees, the chart developing the characteristic zigzag appearance, the countenance becomes more dull, the eyes more suffused, the face more flushed, the tongue more coated, the intestinal discharges thinner and more frequent, the abdominal tenderness and tympanites more marked, the skin dryer and congested. Both skin and breath exhale a peculiar odor, the pulse increases in frequency, rising, perhaps, from between 80 and 100 to between 100 and 120, and is more in proportion to the temperature. The petechia or rose spots, slightly elevated above the surface and disappearing upon pressure, present themselves upon the abdomen and back. They usually appear, when present, about the seventh day. I remember some time since, during a discussion in our Society on this subject, great stress was laid on these spots. You will fail to diagnose many cases of typhoid fever if you depend on the spots. They are not always present, at least in my experience, and I believe they appear in only about 30 per cent. of the cases noted. In a report of 162 cases of typhoid fever in Porto Rico by Dr. Senn, army surgeon in the late war, he found the spots in only 37 cases.

We are indebted to Widal of Paris, who has given us the means of diagnosing a case of typhoid fever when diagnosis can not be based upon precise symptoms—the serum test—a drop of blood on your slide or visiting card, sealed and sent to your health board.

The urine should always be examined for traces of albumin, and microscopically for the bacilli, when possible. We all know the importance of good nursing and careful feeding in these cases. I invariably insist upon a definite amount of milk, given at stated intervals, as follows: Three ounces of cow's milk every two hours, giving one and one-half ounces of beef tea or broth alternately. I continue this dietetic treatment throughout the disease until the fever becomes normal in the evening, when I commence to increase the diet gradually. I do not give alcohol in any form, unless called for by the condition of the pulse.

Osler says that at least 75 per cent. of enteric fever patients recover under any and all forms of treatment, and even without the good nursing and regulated diet upon which we lay so much stress; and medicines are not, as a rule, indicated. No known drug shortens by a day the course of the fever. No method of specific treatment or of antisepsis of the bowels has yet passed beyond the stage of primary laudation. An impression has gone forth throughout the whole profession that all that could be done in the management of these cases was to regulate the

diet and treat them symptomatically. This, I believe, is an error.

I certainly claim for the antiseptic treatment, that it modifies, if not cuts short, the disease. I say this with all due respect to Dr. Osler, who is one of the most distinguished members of our profession. I have a record of two hundred cases of typhoid fever, treated in the past twelve years by my father and myself on antiseptic principles, with a mortality of 10 per cent. in private practice.

Among the antiseptic remedies used in the treatment of this disease are turpentin, calomel, salol, Lugol's solution, lysol, guaiacol, naphthol, sulphocarbolate of zinc, bichlorid of mercury, subnitrate of bismuth, eucalyptol, thymol and many others too numerous to mention. There are many other forms of treatment mentioned, such as the expectant plan, the Brand method, Woodbridge treatment, etc. I believe the latter to have produced good results.

The treatment my father and I have pursued for the past twelve years has been chiefly antiseptic, and the mortality has been low, and the course of the disease shortened. I have never seen any ill-results follow, and diarrhea has been the exception. The tongue cleans and remains moist throughout the disease. There is an absence of sordes about the teeth, very little or no tympanites, no delirium; in fact, your patients are as easily managed as a new-born babe. You have improvement in every direction and rapid convalescence. The earlier you get your patient under treatment the better the result. Many of these cases were treated under very unfavorable circumstances; bad hygienic surroundings and little or no nursing. Five of these cases were treated in the Baltimore County Jail while I had charge, and you can imagine how much attention a patient would get in our jail; yet they recovered under this mode of treatment. One of these jail cases was over-fed and had fever for thirty-five days, including three hemorrhages from the bowels. He finally made a good recovery.

You should watch your patients closely and the dose should be accurate. I allow my patients all the water they want, and order a tepid sponge bath twice a day. It freshens a patient and aids in the reduction of temperature. I will close my paper by a report of a case I have under treatment at the present time.

Case 1.—I was called to see E. B., aged 7½ years, on August 28, in the evening. He was complaining of feeling chilly, with muscular soreness and rigidity of muscles of the neck. His tongue was coated; temperature 102.75; pulse 110. His mother informed me he had not been well for a week. I gave him quinin and calomel, which had no effect whatever upon the patient's fever. I continued the treatment until I got three or four actions of the bowels a day. The fever continued to rise from morning till evening until it increased 3.6 degrees. I thought the case looked suspicious and immediately changed my treatment. It turned out to be a well-marked case of typhoid fever. There was tenderness in the right iliac fossa, with slight tympanites. The spots made their appearance on the abdomen and back on the seventh day, gurgling in the right iliac region in the second week. He had a typic typhoid tongue; no nose bleed. The bowels were constipated and remained so throughout the attack. The case yielded promptly to treatment. His fever was normal on the morning of the thirteenth day and a normal evening temperature on the sixteenth day.

This is only one of the many cases mentioned in my paper, but this case agrees with the others as to the average duration of the disease under the antiseptic mode of treatment.

A BREECH PRESENTATION, WITH AN UNUSUAL COMPLICATION.

BY J. HUNTER PEAK, M.D.
LOUISVILLE, KY.

July 22 at 6 A.M., I was called to see Mrs. F., aged 26, multipara, in labor. History: general health good; family history not good. She was the mother of two children; one died in a few months, and the other is about two years old. Patient had a bad fright and fall about one week before present confinement, and suffered severe pain in right side four inches external to umbilicus, until the date of this confinement. She is of Irish birth, large and angular in form, with broad pelvis; height five feet six inches; weight 140 pounds.

When I arrived, she told me that labor had been in progress all night. Digital examination revealed a breech presentation, first position, the nates already engaged in the superior strait. The amniotic fluid escaped at the first examination, the membrane being then accidentally ruptured. The size and shape of the membranes is a diagnostic point well to be remembered. Instead of the broad and more firm protrusion of the membrane in vertex presentation, it is long and not unlike a glove finger. The diagnosis of breech presentation could easily be made. The scrotum, penis, tuber ischii and anus could all be well distinguished, and the first pain after the membranes were ruptured forcibly expelled a large quantity of meconium.

Abdominal palpation also showed the back of the child anteriorly, or toward the belly of the mother. It must be remembered that the back does not look directly, but obliquely, forward and to the left of the median line. The anterior of the two ischii came down more advanced than its fellow, and was found lower in the pelvis, so that the nates passed the entrance cavity and outlet of the pelvis in a position which is oblique both as to its transverse diameter and to its axis. In this position the left ischium corresponded to the right acetabulum, the right to the sacro-iliac juncture. The left ischium, being anterior, was depressed, and it will be remembered is felt first at the os uteri. It came down and passed first through the vaginal orifice, its fellow sweeping around the sacro-coccygeal curve, the belly of the child looking to the right thigh of the mother. Here, instead of labor progressing in the normal way, it was arrested. Pains steadily increased, and the mother was extremely heroic in her efforts. The diagnosis of the position was not made known to patient or attendants, for obvious reasons. After waiting for one or two hours and no progress being made in labor, I passed my index finger around the front of the child to find but one leg, the right, it being in normal position against the breast. The position of the left leg was finally determined, it being flexed with the knee in axilla and foot securely engaged between the child's shoulders, preventing lateral flexion and right ischium from passing over the perineum, the lateral diameter being increased by the thickness of the leg and preventing flexion on account of unyielding femur.

Placing left index finger around the child's left thigh and passing right index and middle fingers into the mother's rectum, lateral flexion was forcibly made by lifting directly upward during pains. I appreciated the fact that there was danger of breaking the child's leg, and then told the mother and the attend-

ants what the position and complications were, and suggested what would in all probability occur. The mother was now becoming exhausted, and the leg could not be put in correct position any way; hence something had to be done. By making traction during pains, as stated above, the right ischium finally passed over the posterior commissure, and the remainder of labor was easy. The rest of the trunk came down in this position, and as the breast approached the inferior aperture of the pelvis the shoulders passed through its superior aperture in left oblique; the arms and elbows were not down by the side of the breast, but were up by the child's head, but when the shoulders passed down the arms and hands were brought down, so as not to interfere with adaptation of the head. During the descent of the shoulders, the head with the chin resting closely to the breast, entered the superior strait in the right oblique diameter, with the forehead corresponding to the sacro-iliac juncture. The head descended and rotation took place, and by raising the child over the abdomen of the mother, the face looking toward the anus of the mother, passed through the vulva.

Recapitulation.—The perineum was supported by the palm of the right hand, while the index and middle fingers were in the rectum assisting in lateral flexion of the child, and to further facilitate the protection of the perineum, the hips of the mother were slightly elevated and the legs lowered and extended, this position completely relaxing the perineum. The left leg of the child was bent at about the juncture of the lower and middle third of the femur at an angle of 95 degrees, but was easily straightened and without complete fracture, as was decided by Dr. Corrigan and myself—Dr. Corrigan being called in consultation for the child. But the reduced fracture was maintained by a fixed dressing, which held the foot and leg in proper position. All dressings were removed in about three weeks, and at present the little one has perfect use, to all appearances, of each leg. In fact, recovery of both mother and child was uneventful.

ANTISTREPTOCOCCIC SERUM.

BY C. P. THOMAS, M.D.

SPOKANE, WASH.

I contributed to the JOURNAL of Dec. 18, 1897, a report of eight cases of acute sepsis in which I had used Marmorek's antistreptococcic serum with complete success, and I now have fifteen more cases to report.

Case 9.—Mr. J., age 50, was suffering from acute gangrene of the lung following pneumonia. His breath was extremely fetid, temperature 101; the entire body covered with an eruption, appetite poor, and he was apparently in a hopeless condition. Phthisis was suspected; two microscopic examinations failed to detect tubercle bacilli, but confirmed the diagnosis of gangrene of the lung. This condition having continued for several days without any apparent improvement, he was given 10 c.c. of serum, and in twenty-four hours his temperature and pulse were normal, the odor of the breath less offensive, and the eruption disappearing. His condition continued to improve until the tenth day, when he left the hospital free from any septic symptoms. This case was under the care of Dr. J. N. Starr.

Case 10.—Mrs. G. suffered from facial erysipelas, beginning in the nose and extending over the entire face and head. Her temperature was 105, she was delirious and suffering great pain. She had been given the usual internal treatment, also local applications of ichthyol and bichlorid, but without improvement. Ten c.c. were administered, and within twelve hours her temperature and pulse were normal, pain relieved, and after another day her delirium disappeared. She was under the care of Dr. P. S. Byrne.

Case 11.—Dr. Byrne contracted the disease upon a slight abrasion on the hand, while attending the above case. Six hours after he first began to feel the pain, there was considerable swelling of the hand, and it had extended up the arm to the shoulder. He was then given 10 c.c. of the serum, and his temperature dropped from 101 to normal in twelve hours; the swelling, pain and soreness had decreased. A few hours later, however, the inflammatory symptoms began to recur and a second dose of the serum was administered. On the following day all the symptoms had disappeared, and he was well. No other treatment except a moist bichlorid dressing was given him, and I am thoroughly convinced that without the serum, he would have had the usual course of erysipelas.

Case 12.—Compound, comminuted fracture of the tibia. Violent sepsis developed the fourth day, temperature 104, pulse 120, the limb red and much swollen. Ten c.c. of antistreptococcic serum were administered at 6 P.M. and his limb not dressed until morning, when the temperature was found to be normal; and although a slight evening rise was observed, all symptoms of acute sepsis had subsided and he continued to improve until recovery.

Case 13.—Miss C., acute facial erysipelas, developed upon a slight abrasion of the ankle, was seen first the second day of her illness, when the blush had extended to her knee, temperature 104, and she was in great pain. She was at once given 10 c.c. of serum, and in eight hours her temperature was normal, and she was comfortable. The following morning the disease was found to have extended in both directions, and her temperature was 105; the serum was repeated with about the same results as before. The third morning her temperature was 102, the disease was stationary, when a third dose was given. The fourth morning the temperature was normal, the blush nearly all gone, and she was apparently well. It has not been my pleasure to see any other case of its severity recover so rapidly, and all other treatment in her case was abandoned.

Case 14.—Mrs. K. was brought to the hospital the fifth day after her confinement, during which it was necessary for her attendant to introduce his hand for the removal of the placenta. Her abdomen was distended and a purulent discharge was coming from the uterus. Considerable placental tissue was removed with a curette, and the bowels thoroughly opened. She was also suffering from bronchitis, and her urine contained pus. At the end of forty-eight hours after the curettement, the temperature having remained nearly normal up to that time, she was taken with a severe chill, which was followed by all the symptoms of violent sepsis. She was then given 10 c.c. of antistreptococcic serum and the same repeated every day for four days, but her temperature remained from 102 to 105. The bronchitis increased and she continued to grow weaker until she died the seventh day. This death, I think, was due to the bronchitis and other complications and not to the puerperal sepsis.

Case 15.—Mrs. H. was confined in the hospital the day that No. 14 was curetted. All went well with her until the eighth day when, through the carelessness of a nurse in the training-school, she was infected, it doubtless having been carried from the other case. Her temperature suddenly rose to 104, the abdomen became distended, and the normal lochia changed to a purulent discharge. She was at once given 10 c.c. of the serum, her bowels opened after much trouble, the uterus irrigated with bichlorid and creolin. The following morning her temperature was 102, the abdominal tenderness and distension decreasing, when she was given 10 c.c. more. Twenty-four hours later her temperature was 100, and she gradually continued to improve for five days, when she again showed symptoms of sepsis, which disappeared with intrauterine irrigation.

Case 16.—Miss C., under the care of Dr. Ewing. At 9 A.M. on the third day of a severe attack of facial erysipelas, in which her temperature was 104, the face and ears distorted with inflammation, marked delirium and pulse bad, 10 c.c. were administered, all other treatment abandoned. Temperature at 6 P.M. same day, 102; the following morning, temperature 100, swelling subsiding, all further spread of the disease stopped, and recovery rapidly took place.

Case 17.—Mrs. M. was forcibly delivered of six-months twins after twenty days' severe bleeding from placenta previa. Forty-eight hours after the delivery, violent sepsis with chills and high temperature developed; 10 c.c. were given, and at the end of twenty-four hours, her temperature was 100, remaining so for about forty-eight hours, when it again rose to 104, and she had several chills until the serum was repeated. The temperature then came down, and she continued to improve until recovery.

Case 18.—Mrs. T. was delivered of her first child after a

difficult instrumental labor. A slight laceration of the perineum was repaired at once. At the end of twenty-four hours, she had a severe chill, followed by high temperature, suppression of lochia, abdomen slightly distended, no peritonitis, but otherwise septic to a high degree. Intrauterine irrigation, cold bathing, and the administration of iron and quinin were begun at once. At the end of eight hours she was, if anything, more septic, and there was no amelioration of the symptoms whatever. She was then given 10 c.c. of the serum, and the other treatment continued. Within six hours her temperature began to fall, and at the end of twenty-four hours from the beginning of sepsis, she had considerably improved. She then had another severe chill followed by high fever, and she was given 10 c.c. more of the serum, and after eight hours her temperature again came down, remaining so until she was well.

It has been my pleasure to have furnished this remedy to five of my medical friends in this vicinity, who have used it successfully in each case, three of which were puerperal sepsis. Inasmuch as the death-rate from all forms of acute sepsis is high, and especially from puerperal sepsis, and is affected only slightly, if at all, by any other method of treatment, I can not but think that the number of recoveries is largely due to the serum treatment; and it is my firm belief that it is a very valuable remedy which, if administered early, in those septic cases where there is not already acute peritonitis, will effect a cure in a large percentage of them. I would advise in its administration that at least 20 c.c. be given at the first dose, and repeat it in smaller doses every twenty-four hours, until the desired results are obtained; and I would suggest in this connection that a large antitoxin syringe be used for administering it, instead of the ordinary hypodermic syringe, which, however, can be used in an emergency.

ECLAMPSIA.

A CASE WITH POSTPARTUM HEMORRHAGE, PUERPERAL MANIA AND PLEURITIS.

Read before the Lake County Medical Society, Oct. 13, 1898.

BY W. C. BOUTON, A.B., M.D.

Professor of Histology, Northwestern University Dental School, 1893-94; Clinical Instructor in Neurology, Northwestern University Medical School, 1893-96; Medical Inspector of Chicago Health Department, 1896.

WAUKEGAN, ILL.

I have the pleasure of reporting this interesting case by the courtesy of Dr. J. M. G. Carter, with whom I attended in consultation:

The patient, a young primipara, seven months pregnant, was first seen by me June 8. She gave a history, if I remember correctly—having no notes of the case at that time—of headache, disturbance of vision and epigastric distress. There was marked edema of the lower limbs and the Doctor reported considerable albuminuria. The treatment instituted was milk diet and active elimination by means of pilocarpin and salines, keeping careful watch upon the quantity and quality of the urine. I did not see the patient again until June 17, when I was suddenly called, in the Doctor's temporary absence, and found the patient lying on the floor and having a typic uremic convulsion. This was controlled by chloroform, and as soon as the patient was in bed, 30 grains of chloral hydrate were given by enema. About an hour later, another milder convulsion occurred, and the enema was repeated. The convulsions then ceased and consciousness soon returned, but the chloral was continued in 30-grain doses, together with 30 grains of sodium bromid, four times daily, for several days, and then in diminishing doses. Elimination by the skin and intestines was also encouraged, but although the daily amount of urine averaged fully 50 ounces, the uremic symptoms did not improve and it was decided dangerous to delay interference.

With aseptic precautions, a bougie was introduced between the membranes and uterine wall, and labor soon began. The following morning, in the absence of more bougies, a couple of sterilized catheters with the eyes plugged, were introduced, and soon digital dilatation was possible. The attempt was made to employ a colpeurynter, but without success. The pains, however, steadily increased in force and frequency, and in the evening a puny, anemic infant was born, which died in about twelve hours, despite artificial heat and feeding, evidently the victim of the mother's uremia. There were no convulsions during labor, and the patient's condition afterward appeared better than was to be expected, pulse being but slightly above 100. Hemorrhage, however, was quite free, in spite of repeated doses of ergot.

I did not see the patient until twenty-four hours later, when I was again called in consultation, and found her complaining of severe pain through lower part of abdomen. Examination revealed the fundus extending well up toward the umbilicus, pulse 116, temperature 103. A vaginal douche, followed by a 1 to 6000 bichlorid intrauterine douche, was given, a clot almost as large as a child's head was expelled and the uterus contracted. It soon, however, began to relax, and as ergot had very little effect, Dr. Carter and I spent most of the night, in alternate half-hours, manually compressing the uterus until it remained firmly contracted. The following noon the pulse was 128 and temperature 102, but at 6 P.M. pulse had fallen to 92 and temperature was normal.

We supposed then that our troubles were mostly over, but were mistaken. There was no further hemorrhage, but next morning the symptoms of mental disturbance, which had been slightly apparent during the previous day, became very decided. By afternoon the patient was mildly delirious and during the night became maniacal. Her delusions were rather amusing and were largely influenced by the disturbance of vision due to albuminuric retinitis. She declared the room was full of smoke, and insisted upon being removed to another room. When her demands were finally complied with, she found her new quarters in as bad a state as the old. Dr. Carter, although close shaven, was advised to shave again, and your humble servant was complimented by being called the prince of evil spirits. That her delusions were not all amusing, however, was well proven by the marks of her finger-nails upon our hands. Chloral and sodium bromid, 30 grains each, were given by enema several times during the day, and in the evening the much-needed sleep came.

Next morning her mind was almost clear, but at 4 A.M. the pulse was 136 and temperature 103. At the morning visit she complained of sharp pains in the right side of the chest and, upon auscultation, the fourth complication was discovered in the form of pleuritis, the friction sounds being well-marked. Pulse was then 128, temperature 103, respiration 26. Morphin, gr. $\frac{1}{4}$, and atropin, gr. $\frac{1}{75}$, were administered and a bag of hot salt applied, and soon the pain was relieved, but at noon pulse was 126 and temperature 104. Pulse reached 132 at 3 P.M., but respiration was only 20. During the day, 30 drops of aromatic spirits of ammonia were given every three hours, and also a few tablets containing $7\frac{1}{2}$ grains mixed bromids and 5 minims each of tinct. hyoscyami and tinct. cannabis indicæ. In the evening, she began to take 10 grains of potassium iodid every four hours, and pulse falling to about 110, the aromatic spirits was given but once in four hours. The nourishment consisted of milk freely given and liquid peptonoids, ʒss about every three hours. At 10 A.M. the next day, pulse had fallen to 100 and temperature to 101. During the twenty-four hours she passed 130 ounces of urine. I did not see her after the following morning, as she was then progressing favorably and continued a slow convalescence, varied with mild salivation and mammary tenderness. Her temperature did not return to normal until nearly a week later, but was at no time above 102, and pulse remained about 100.

A few days ago, the lady made a social call, having just returned from a couple of months' absence. Her health seemed to be perfectly restored, with the exception of considerable impairment of vision, due to the injury resulting from the retinitis. She stated that she weighed about twenty pounds more than she ever had before.

In reviewing this interesting case and drawing some conclusions, the questions which naturally present themselves are: What were the causes of the various complications? Were they preventable? Was the treatment up-to-date and could it not be improved? Taking them in order and considering them as concisely as possible, we need not inquire the cause of the eclampsia, knowing the increased liability to renal disease in pregnancy. We do not doubt that the necessary precautionary advice was given, but I under-

stand that it was not carefully followed, and the Doctor was not called until the symptoms became troublesome. We doubtless all agree that it is best in all cases, where we are consulted early, to examine the urine thoroughly, taking a specimen of the carefully measured and mixed twenty-four hours' amount, and to repeat these examinations at least once a month during the latter half of pregnancy, examining more frequently if there are any signs of renal trouble, and regulating the patient's diet and habits accordingly. If the symptoms become marked, milk diet, saline laxatives and diaphoresis are necessary. For diaphoresis, I prefer the alcohol sweat or hot bath to pilocarpin, on account of the latter's depressing cardiac action.

If, in spite of these measures, a uremic attack comes, it is decidedly dangerous to long delay induction of premature labor. Nothing is to be gained by waiting, and the child has a much better chance for life if delivered early. The danger to both mother and child increases with every attack. My esteemed instructor, the late Professor Jaggard, one of the best obstetricians of Chicago, lost his wife from uremia by yielding to her entreaties and delaying interference too long. In the uremic attack, a cloth between the teeth and other measures to prevent injury to the patient are first to be provided, together with chloroform inhalations. Then, I believe there is nothing better than enemas containing 30 grains of chloral repeated *pro re nata*. It is the physiologic antidote and, it seems to me, far preferable to morphin, which, although advised by Loomis, is certainly a dangerous remedy, as it checks the secretions and the elimination of urea. Moreover, with impaired elimination, we may easily get the toxic effects of morphin if freely given. Of other remedies, tinct. veratri viridis in 5 to 20 minim doses hypodermatically is recommended, also ol. tiglii, a drop or two on the tongue, to promote quick catharsis. I have, however, never employed these remedies nor venesection, which may possibly be useful in some extreme cases, but as the patient is already weak and anemic from the nephritis, it seems wisest to resort to it very seldom. In the induction of premature labor, unless the symptoms are urgent, the gradual dilatation of the cervix is much better for the mother, I believe, than the rapid method, and natural delivery preferable to the forceps.

Postpartum hemorrhage is the second complication to be considered. Albuminuria was doubtless a causative factor, and probably also the weakened contractive force resulting from the continued use of chloral. With such a history, the safest course, after completely emptying the uterus and bladder and giving ergot, would probably be to maintain manual compression of the uterus for at least an hour, and then, if it still showed a tendency to relax, to give first a 1 to 4000 sublimate, or preferably a 2 per cent. carbolized or creolin vaginal douche. This would probably expel all clots, act as an excellent hemostatic and promote vigorous contraction. The water should have a temperature of 110 to 112, and it is needless to add that only an irrigator or fountain syringe should be employed and the necessary precautions observed to prevent the introduction of air. This method is far preferable to either the introduction of a piece of ice or a solution of vinegar, either of which may contain pathogenic germs. The use of a solution of perchlorid of iron is to be unreservedly condemned as barbarous and very dangerous, favoring thrombosis and embolism. One injection of a quart of the hot, sterilized water would usually be sufficient, but it might be repeated if necessary, and manual compression continued until the uterus remains firmly contracted. The restorative measures after a severe hemorrhage, such as subcutaneous injection of sterilized, normal saline solution, administration of hematinics, etc., need not be here considered.

Puerperal mania is the next complication. Sepsis, eclampsia and anemia are among its most frequent causes. Sepsis may here be fairly excluded, as aseptic precautions were carefully observed, and Dr. Carter stated that at no time were the lochia offensive nor was there other evidence of infection. Without doubt, in almost every case of insanity during pregnancy, the puerperium or lactation is due either to toxemia or anemia, both causes being present in this case. Puerperal mania is more frequent than melancholia, and gives a more favorable prognosis. According to Menzer's statistics, about 75 per cent. of puerperal cases recover. The important principles of treatment are isolation, rest and an abundance of easily assimilable nourishment, predigested, and in the form of nutritive enemata if necessary. Hematinics are called for, and stimulants may be required. Nerve sedatives are to be used with care and discrimination, chloral being one of the best hypnotics. Hydrobromate of hyoscin is among the preferred remedies for quieting maniacal states. Opiates are generally to be avoided, but may prove useful in melancholia.

The last complication to be considered is pleuritis. Sepsis is undoubtedly its most frequent cause in the puerperal condition, but this may here be excluded for reasons given. Knowing the liability to inflammations of the serous membranes during nephritis, I think we need not look farther for the cause, nor need we concern ourselves with the prognosis or treatment, which, when the disease is not due to sepsis, are practically the same as at other times.

SUPRAPUBIC CYSTOTOMY vs. PERINEAL SECTION.

BY JAMES M. PARROTT, M.D.

KINSTON, N. C.

In 1561 that bold surgeon, Pierre Franco, performed the first suprapubic cystotomy for the extraction of a vesical calculus. It is said that he performed it only as the last extremity and that his patient died. The first operation of this character performed in this country was by Gibson, with like results; his patient, Agnew says, died of peritonitis. Prior to Gibson's feat the "high operation," as it is frequently called, was attempted with more or less success by several eminent English surgeons. Though it did not fulfill the expectations of a great many at that time, yet it even then gained a certain amount of popularity. This prominence, however, was of short duration, the operation very soon being set aside and generally considered as one to be performed only in certain rare conditions where none other could be done. It met its early fate at that period because of the prevalent ignorance concerning sepsis and asepsis. Surgical technic along this particular line was especially imperfect, urinary infiltration and peritonitis very often resulting.

Perhaps no operation known to surgery has been brought forward so often and met with such short-

lived popularity as this particular one. Under the impulse of modern surgery it has now reached as near perfection as it is possible for any surgical procedure, fulfilling as it does, with astonishing results, its works of usefulness. For many years the disastrous results produced by disturbing or wounding the peritoneum frightened the timid and perplexed the bold. At last Peterson solved the problem by introducing his method by which the distance from the pubis to the anterior peritoneo-vesical attachment could be greatly increased. The operation immediately rose to even greater prominence than ever before, and at last, after several improvements of more or less importance, it reached that high plane on which it now rests, and from which it will never recede. Its simplicity, its very low mortality and its quickness and thoroughness in effecting a cure, together with the rarity of dangerous or annoying complications or sequelæ will forever keep it the operation par excellence when a cystotomy is demanded by the exigencies of the case.

Perineal section is the oldest operation by which stones are removed from the bladder, it is indeed one of the most ancient of all surgical procedures. We are taught by the professional historian that it was performed by Hippocrates and later in the time of Christ, by Celsus. In the early days of modern French civilization "cutting on the gripe," as it was then called, was often done, and by a great many with remarkable results, if the literature of that time is to be believed. This operation was then most successfully performed by traveling quacks, who demonstrated by their dexterity that the "apparatus minor" was superior to the "apparatus major" of the regular profession. Indeed from these quacks and their methods a great many modern surgeons could learn with advantage a great deal in the way of dexterity, simplicity and boldness. At first perineal section offered to the profession the only means by which cystotomy could be performed. When men came to understand something accurate concerning the human body they began to look about for an operation which might be an improvement on the old method. As a result today we find perhaps the majority of the more advanced surgeons holding the view that suprapubic cystotomy is the ideal operation for the purpose for which it was intended.

In preparing the patient for suprapubic cystotomy the usual surgical rules should be followed. If the kidneys permit it, salol might be given several days prior to the operation. It certainly has a most happy effect in rendering the urine septic. It is of special service in certain cases of septic cystitis. I can not recommend too highly its use in those cases of vesical inflammation of a gonorrheal origin. The renal organs should be examined carefully prior to its administration as well as before the operation. The very few instruments and dressings necessary should be sterilized thoroughly even in cases where sepsis already exists. An uncomplicated infection is much more easily handled than is a mixed one. The pubis, scrotum, perineum, thighs and rectum should be cleaned scrupulously and the bladder irrigated with an aseptic solution, boracic acid preferred. A large-size Barnes or rectal bag is now introduced into the rectum and filled with six or eight ounces of water, being particular to guard against its over-distension. The using of this little device is not always necessary; in fact, when one has thoroughly acquainted himself with the operation it is really of but little assistance. I never use it now; in fact, I find it very often annoying if I am operating upon the prostate, by producing a gorging of the vesico-prostatic plexus. It also often causes a continuous hemorrhage by producing a turgescence of the pre-vesical veins. This hemorrhage, however, always ceases when the bag is removed.

A catheter is now introduced and eight to ten ounces of saturated solution of boracic acid is forced into the bladder, caution being exercised in its introduction. In children, from one to four ounces of the fluid is sufficient. This raises the bladder toward the umbilicus, and greatly increases the distance from the symphisis to the anterior vesico-peritoneal attachment. If used at all, the rectal bag should be introduced before the bladder is distended, since it prevents the viscus burying itself deeper in the peritoneum than it would should the bladder be first filled and the rectum afterward distended. An incision is now made in the median line immediately above the symphysis, the length of the wound being governed by the condition calling for the operation. It should not be too long, still, it is always best to have sufficient room to work dexterously. The pre-vesical fat is pushed up and with it the peritoneum, by introducing the index finger-nail against the symphysis. If the peritoneum be torn or cut it should be sutured immediately, before the bladder is opened. Any pre-vesical veins which may be in the field should be pushed aside. After all hemorrhage has been checked, a ligature is introduced into the bladder on each side and this passed through the skin and securely tied. This holds the vesical walls in place and later prevents urinary infiltration. The incision into the bladder is now made between these sutures, and the operation completed according to the demands of the case, be that prostatic work, drainage, the removal of stones, foreign bodies, etc. If there be septic infection the operation had best be done in two stages, as recommended by Senn. When I wish to close the vesical opening immediately—and it should always be done when expedient—I introduce the above-mentioned sutures only in the bladder itself and at the upper and lower ends of the wound, that is, its pubic and umbilic extremities. By this device I am very greatly aided by having my assistant hold each ligature taut, thus producing a straight wound and a steady surface.

Let me pause just here to condemn the distension of the bladder by air, either before the viscus is opened or in testing the thoroughness of the bladder sutures afterward. It is often wise to establish drainage from the pre-vesical space; however, this must be determined in each case.

Of course, after immediate suture the urine should be drawn off every four hours, though very often the patient will urinate voluntarily. When possible to prevent it this should not be allowed, catheterization being much preferred. A stone, foreign body, and even tumors, when possible, should be removed with the fingers, using them here as in every operation as much as possible. Never fear cutting too close to the symphysis, for if the sutures be used as above described the vesical walls can not drop out of sight or reach when the distension is removed. The cutting of the attachments of the recti or the cross-section of the muscles, so commonly practiced by many surgeons, is to be condemned, unless the exigencies of the case demand it, then the division of the attachments is to be preferred, since it gives more space at a point where it is most needed. All blood-clots should be removed

and all hemorrhage checked (hot water being the best agency for this purpose) before the dressings are applied. When permanent drainage is desired it is probably best to use the instrument devised by Senn. It is easily retained, and by it the urine is very nicely and thoroughly collected. When temporary drainage is necessary it should be by siphonage, and should be discontinued as soon as the conditions calling for its use will permit. The patient should be allowed to sit up very early, though much caution should be exercised in this particular. When drainage from the pre-vesical space alone is necessary, gauze strips (very weak iodoform preferred) should be snugly but loosely packed in both ends of the wound. This, with the assistance of two or three sutures properly introduced at the upper end—and sometimes at the lower one—and the use of common sense in the after-treatment, will in almost all, if not in all cases, prevent urinary infiltration, abscess formation and peritonitis. The failure to observe the fundamental laws of cleanliness in these cases is frequently the cause of fatal results.

When a case for cystotomy presents itself to us the question very naturally arises: Shall we do the perineal section or the high operation? In order that this question may be solved correctly each case must be studied in detail, for that there are instances in which perineal section had best be done must be admitted.

When foreign bodies are to be removed from the bladder the wound made in doing the suprapubic operation may be immediately closed, and the patient, all other things being as they should be, makes a quick and complete recovery. Not so with the perineal section; in this instance the wound must be left open and the patient is unnecessarily submitted to the annoyances and dangers resulting from a possibly permanent fistula, sterility and urinary infiltration. To these must be added the dangers which usually attend this method when used in any indication demanding a cystotomy.

In removing any variety of tumors from the bladder, the suprapubic operation is by far the better. By this method we can expose all or as much of the bladder as may be desired, while by perineal section the field for manipulation is limited. I remember quite well a case which came under my care, in which a papilloma was located on the upper wall of the fundus, and which escaped detection at the hands of another operator doing the perineal section. When doing the high operation any hemorrhage following the removal of a neoplasm can be better controlled than when doing the lower one. The suprapubic wound for the removal of tumors can generally be immediately closed. The advantages of this are obvious. Care must be exercised to check any hemorrhage before the vesical wound is sutured.

In entering the bladder because of an enlarged prostate the suprapubic operation is again to be prefered. By this method we have the greatest freedom in manipulations, and if it is desired, we are in the best possible shape for prostatic operations of any kind whatsoever. Very often—in fact it is the rule when we are called upon to enter the bladder of one suffering from an enlarged prostate—we find it almost impossible to pass the proper bougie or catheter; because of this in doing a perineal section another very annoying and often serious complication arises, of entering the bladder through the perineum without a guide. If permanent drainage is desired, and with these patients such is often the case, suprapubic cystotomy is equally as good if not better.

In cystitis, whatever its nature may be, I much prefer the high operation. The bladder is then under perfect control, and except in very rare instances the wound may be made to close at will. Experience has taught me that drainage can be more thorough by the suprapubic operation than perineal section, theory to the contrary notwithstanding. The various complications which frequently arise during the performance of a cystotomy, as in the after-treatment, can be better treated by this method than by any other. I was once consulted by a gentleman who had had what was considered an uncomplicated case of cystitis, due to catheter infection. The sufferer had been operated upon by the "low method" in order that the bladder might have rest by perineal drainage. He improved somewhat, and the wound was allowed to heal. Later, I did suprapubic cystotomy to establish drainage, and much to my surprise I found an imbedded stone. In this patient the perineum was very deep because of concentric prostatic enlargement, and the calculus could not be reached by the finger when the operator explored the bladder. In drainage through the perineum the patient must be kept in bed, while in suprapubic drainage, after a few days the sufferer can be allowed to sit up a short while at a time. This is a very decided advantage. Suprapubic cystotomy is especially to be preferred to tubercular or septic cystitis, particularly when the operation can be performed in two stages.

The advantages of high operation over the low one in removing foreign bodies and neoplasms from the bladder and in treating cystitis are not greater than those it possesses in lithotomy. It is really in this class of patients that it has done the greatest good. Here, as elsewhere, suprapubic cystotomy presents its special benefits. It is most often the case in a perineal section that we are compelled to extract the stone with forceps. By it we not only submit our patient to the danger of damaging the bladder wall but also to the ofttimes bad result from the necessary enlargement of the perineal wound. Frequently we are compelled to crush the stone. This is, to say the least, very annoying and expensive as to time, the latter being quite an item if the patient be weak and emaciated, as is generally the case. The Dolbeau-Harrison operation is certainly very objectionable. Litholopaxy, if performed at all, had best be done as laid down by White and Bigelow. Occasionally the stone is imbedded, and might then be overlooked if a perineal section was done. If the imbedded stone were discovered it is quite a difficult and often impossible procedure to remove it through the perineum without doing irreparable damage. This is illustrated very nicely by the following case:

Case 1.—Mr. S., age 58 years, a farmer, gave the history of a deep urethral stricture of fifteen years' duration, produced by traumatism. When seen he presented well-marked symptoms of vesical calculus, though the stricture was too tight to permit a confirmation of the diagnosis with a bougie or stone-searcher. I determined to do primarily an external urethrotomy and secondarily a perineal lithotomy. I performed the lateral operation, relieved the stricture and entered the bladder. By digital examination I discovered two stones, a very large one and a rather small one. While attempting to remove the large one I discovered a third stone imbedded in the base of the bladder, near the prostate. I was unable to remove this one by way of the peritoneum and at once did a suprapubic cystotomy, with perfect success. Cystitis was very pronounced,

and therefore put in a siphonage drain and applied the usual dressings. On the sixth day, without any apparent cause, a violent vesical hemorrhage occurred which threatened the life of the patient; this originated from the neck of the bladder and the prostatic urethra. After a long while the hemorrhage was controlled by hot water, and had it not been for the opening above the symphysis it could not have been checked. Twenty six days later the patient was discharged cured.

This man is now annoyed, as are all when a perineal section is done, by the weekly passage of a bougie in order that the urethra may be kept dilated; this disagreeable procedure is unnecessary after suprapubic cystotomy.

Not only has the high operation its special advantages over the perineal section in each particular indicated for cystotomy, but it also presents superior advantages which might be urged in its behalf in all cases demanding this kind of surgical interference. The suprapubic operation is much the simpler and quicker; simpler because of the uncomplicated construction of the parts, and quicker chiefly because of this anatomic simplicity. This is a special advantage in children, their little organs are so very small and delicate and the bladder so high and mobile that great and fatal damage can be done in perineal section, very often without the knowledge of the operator, until possibly the little sufferer dies of urinary infiltration, peritonitis, etc. For women, the suprapubic operation is much the better, a vesico-vaginal fistula being most undesirable. When the stone is removed per vaginam the wound should be closed immediately.

Urethral stricture often has resulted from perineal section, while the very great possibility of impotence and sterility should be remembered. There is no doubt but that the left ejaculatory duct is wounded much more often than is generally supposed, the right genitals remaining intact and performing the proper functions. When a fistula results from a perineal section it is much more difficult to cure than is one from the high operation. In fact a perineal fistula is often never cured, while a simple operation and rarely the more serious one, its complete dissection, will always cure the suprapubic sinus.

Lastly let us study the statistics and see what is the result from the application of these methods. Thompson's tables are not admissable because of their antiquity. Borling's statistics cover the years from 1888 to 1892, and while they are now more or less valuable, still they are not entirely reliable because even during the few years since their collection, great improvements have been made in surgery and men have become more experienced with the suprapubic operation. The statistics collected since 1892 show a very remarkably low mortality for the high operation. McGuire's experience is very decidedly in its favor. In July, 1897, Wyeth reported in the *New York Policlinic* fifty-one cases of suprapubic cystotomy, with eight deaths. Apparently and without close study this is a high mortality. Upon examining his report more closely, however, we find that one with prostatic cancer recovered from the operation and died four months later of metastasis; that two with papilloma recovered from the operation and died of recurrence and cystitis; that one with sessile elevation in the trigone recovered from the operation and died one year afterward of pyelonephritis; that one with cystitis died two weeks after stopping the drainage, of exhaustion; that one with concentric prostatic hypertrophy died of exhaustion and cerebral softening; that one with tumor of the middle prostate lobe died of apoplexy and he had had one previous stroke; and lastly we find one with a calculus died on the eighth day from urinary suppression. It is thus seen that out of the eight ultimately fatal cases, four recovered and died later. A study of the four fatal cases remaining shows that three died of effects not attributable to an omission or commission on the part of the operation. The eighth fatal case would doubtless have proven so had perineal section been performed. It is readily seen, therefore, that the mortality with Wyeth was really nothing, so far as the method of operating is concerned, unless the last case before mentioned be counted against him. Then his mortality would be only 2 per cent.—one more favorable than any results ever obtained under similar circumstances from the low operation.

I hope to be pardoned for personal reference when I state that I have never lost a case from suprapubic cystotomy, and my experience along this line, comparatively speaking, has been very extensive. There is no doubt that the statistics of very recent vesical work will be more favorable to the high operation than to the perineal section. Experience and observation have demonstrated that the suprapubic operation is much the simpler, easier and more practical and that with a perineal section we often fail to accomplish our purpose and that it frequently leaves some disagreeable and irreparable sequel, particularly sterility, stricture or perineal fistula.

A FEW CLINICAL OBSERVATIONS DURING AN EPIDEMIC OF VARIOLA.

Read before the El Paso County Medical Association, at El Paso, Tex., Jan. 11, 1899.

BY J. FRANK McCONNELL, M.D. (TOR.)
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LAS CRUCES, N. M.

During a recent epidemic of smallpox in this county, I was able to watch very closely this disease, which privilege is not accorded to the larger number of practitioners. The disease was confined wholly to the Mexican population—who as a rule are unprotected by vaccination—and made the greatest ravages among children under ten years. In some cases vaccination had been performed during early life; and in others more recently, and in the large majority of instances, never.

Several extraordinarily severe cases coming under my care, in whom vaccination has been successful, I was curious to note the outcome.

Sophia G., aged 15 years, was successfully vaccinated at an early age, scar being quite distinct and typic, and again six weeks previous to her illness. She was taken ill with smallpox, showing all the ordinary symptoms, except as regards pain in back, which was more severe than usual. The attack appeared to be a mild one, and a good prognosis was made on first appearance of the eruption, which was discrete in character. The temperature, however, continued high, with laryngeal involvement, subsequent examination revealing fibrinous exudate and edema. Death followed on the ninth day, the pustules being fully developed. Three other children in the same family who had had most typic vaccinations became infected. All had severe attacks, two recovering. Four other cases in different families, were taken with the disease; all had been vaccinated six weeks prior to the attack, and in all the disease ran its course, showing nothing of the "varioloid" type; but with all the

symptoms of moderately severe discrete variola. Recovery occurred in each case.

In this connection I would like to say that it is my opinion that the vaccin matter as supplied to physicians is at fault—the virus being more or less attenuated in its potential elements, if such an expression is admissible, and for this reason *such* a degree of protection is not established as to ward off infection. I would also draw attention to the fact that this epidemic illustrated very clearly to me the old axiom "The more scars, the less liability to smallpox," no person having more than two scars becoming infected. I would, therefore, earnestly advocate that the old practice of inoculation in two or three places be adhered to, rather than the single scarification now in vogue.

A peculiar phase of the epidemic was the almost constant complication of catarrhal or purulent conjunctivitis and the appearance in such cases of the initial macular or measly-form rash.

Regarding the term "varioloid," which we accept as meaning a modified smallpox in persons previously vaccinated, the following may be of interest. Among the Mexicans a mild form of smallpox exists during an epidemic, which they call "*Viruela blanca*" or white smallpox. This condition seems to me to be closely allied to the so-called varioloid, setting in with abruptness and severity, and continuing more mildly, with few papules and no secondary fever. I have seen many such cases, but the curious feature is—*there is no history of vaccination.*

A few words in regard to treatment: I should like to make known the satisfactory therapeutic power of tartarated antimony, commonly known as tartar emetic, in this disease. Thirty-three cases in which this remedy was used showed results which were highly gratifying; in no case did the secondary fever last more than two days, and in no case was it as severe as in those cases in which the drug was not exhibited. A valuable feature also was the complete absence of pruritus, without local treatment, and the general return of the skin to its pristine normal condition, with little or no pitting. A case will illustrate: Two Mexican children, aged respectively 7 and 9 years, in one family, were treated. To the youngest I administered tartar emetic throughout the disease, to the elder child I gave routine expectant treatment, merely meeting the indications as they arose. The secondary fever and delirium in the latter was most intense, the skin irritation was so great that the hands had to be padded. The youngest child, while presenting all the skin eruptions, seemed to be little affected by the toxic properties of the disease; the contrast was so great between the two cases, that even the mother noted the results from the different treatment, and begged me, with the religious fervor characteristic of the race, to give the little white powders to the elder child. I felt guilty for my experimentation, and commenced administration of the tartrate—with little amelioration of symptoms, however. Both cases made good recoveries.

I observed in this latter case, as in others, that the remedy must be given early in the disease in order to obtain its full therapeutic effect.

The dose exhibited varied from 1/250 to 1/16 grain, given at intervals of two to four hours, according to age and the severity of the symptoms. I found that smaller doses were more efficient, that is to say, 1/100 grain was more satisfactory than 1/16 grain, and it was the former dose that I gave almost exclusively after my first dozen cases of experimentation. The larger doses frequently exaggerated the symptoms, and in one case in which they were persisted in, a crop of furunculi called attention to the presence of its physiologic effects.

I, therefore, believe that we have in this drug a very valuable agent in the treatment of smallpox, and I hope to have my experience verified in the practice of others. I have written these few observations in the hope that they may be of service in the treatment, both prophylactic and active, of this much dreaded disease.

A FEW CLINICAL PICTURES.

Read before the Washtenaw County Medical Society.

BY J. A. WESSINGER, M.D.

ANN ARBOR, MICH.

Case 1.—About Dec. 20, 1897, Mrs. N., of Ypsilanti, a widow, aged 50 years, mother of three children, concluded that with her son's help she would do a small washing. The contents of the tub were passed through an ordinary clothes wringer which the lady operated with her right hand. The labor thus performed was trivial. At 4 P.M., of the above date the patient began to suffer pain in the tip of her right ring finger, becoming more marked as time went on. At 6 P.M., she had a severe chill, at 7 P.M., her temperature was 105, pulse 130; and she was suffering violent pain in the finger and was slightly delirious. Her medical attendant succeeded only in part in allaying these symptoms, despite a somewhat heroic medication. On December 21, patient's temperature did not go above 105; pulse 120; extreme pain in the finger. The finger was becoming somewhat ecchymotic and the hand was very much swollen and pitting.

The writer saw the patient with Dr. Hueston at 2 P.M., December 23. At this time the finger in question was gangrenous; the hand and forearm were enormously swollen, temperature was 104, pulse 120. The hand was very painful and there was marked prostration. No line of demarcation was visible. There was fluctation in the palm of the hand. I saw the patient daily, with the attending physician. On December 25, we opened several pus pockets in the palm of the hand. Well marked fluctuation existed in the dorsum of the hand, but still no line of demarcation, and the condition seemingly threatening the whole forearm and even the patient's life.

December 27, we summoned Dr. Nancrede to determine when and how to operate, as an amputation at some point was now inevitable. Of course, waiting was the only alternative until a limitation of the process would be obtained. On December 28, the patient's condition had improved somewhat, temperature subsiding, and swelling of forearm less marked. The finger in question was absolutely dead and shriveled; enormous abscess in dorsum of hand. Patient's general condition improved sufficiently so that on December 31, Dr. Nancrede, assisted by Dr. Hueston, Dr. Wilson and the writer, removed the finger; disarticulating at the carpo metacarpal joint. Aseptic precautions were the best possible under the conditions. Patient was anesthetized with ether. Recovery after operation was uneventful.

Several queries occur at this juncture: What caused this condition of things in this woman? Was it a case of infection? No atheroma was detected, yet could the interdigital branches of the palmar arch have undergone atheromatous change sufficient so that fracture of their walls resulted from pressure of the wringer handle? Or was it the work of a thrombotic plug? Or again, was this one of those cases resulting from the ingestion of diseased grains. Does malignant pustule ever begin at the finger tips? The patient had enjoyed excellent health previous to this accident.

Case 2.—On Feb. 24, 1898, I was consulted by P., a robust appearing German lady aged 37 years. She was the mother of seven children, the youngest being 6 months old. The complaint of this woman was that since the birth of her last baby, she had menstruated every two weeks, and at no time was she entirely free of a sanguineous discharge. She had no pain, but a feeling of weight through the back and pelvis. Bowels were

somewhat constipated; digestion good; nursing the baby at the breast; pulse and temperature were normal. Patient readily submitted to an exploration of the pelvic organs. Digital touch reveals a large, soft, pultaceous mass presenting at the vulva. The growth was attached to the uterus. On the left side of the cervix was a deep unilateral laceration. The growth, as large as an ordinary orange, was attached to, and involved, the antero posterior and right side of the cervical tissues. It was very vascular, and bleeding on slightest touch; very granular in appearance, with exudation of pus between the granules, but no odor. We had here, in outward appearance at least, a very nice picture of papillary carcinoma, or what the older physicians perhaps better understand under the name of "cauliflower excrescence."

Preparatory treatment, with removal of the growth as soon as convenient, was advised, and accepted by the patient. On March 10, assisted by Drs. L. P. Kapp and M. L. Belser and Misses Brigham and Zarrett, we removed the growth by an Emmett's amputation of the cervix, going well above the growth externally, and emerging internally through the internal os, covering the stump by attachment of the anterior and posterior flaps to the mucous membrane of the internal os. This operation, at the same time that it covers the stump, also makes a new os externum. Chloroform was the anesthetic used, and the patient made an uneventful recovery, and at present is in perfect health, with no recurrence.

The criticism I would make of the operation is against the use of silver wire as a suture material, on account of the difficulty of its removal In these cases there is usually marked retraction of the uterine tissues and a burial of the suture, and as a result, a good deal of tissue disturbance in removing the wire. The uterus in this case at time of operation measured six inches in depth; at present its depth is scarce two inches, thus showing the marked involution process undergone by a uterus after cervical exsection. The specimen was examined at the pathologic laboratory of the University of Michigan, but nothing of a malignant nature could be detected, there being simply a hypertrophic change of normal tissue.

Before closing this case we desire to make a suggestion. It is this. When a woman between the ages of 30 and 45 years consults a physician on account of an abnormal bloody flux from the vagina, she should *never* be permitted to go until, at least, the importance of an examination of the uterus and adnexa, has been fully impressed upon her. Statistics show that in about 11 out of every 15 cases cancer of the uterus has its origin in a lacerated cervix.

Case 3.—I first saw this patient at 6 o'clock on the morning of Aug. 13, 1898, in consultation with Dr. Lee of Dexter. The scene presented in the bed chamber was not the most pleasant ever witnessed by the author. The patient, a very large muscular young woman, was in violent post-partum eclamptic convulsions, whose onset dated from 3 o'clock of the same morning. At 3 A.M. of August 12 she had given birth to a healthy male child, accouchment being uneventful. It will be noticed that eclampsia did not occur until twenty-four hours after the birth of the baby. Her lower extremities were enormously edematous, her entire body in a semi-anasarcous state. Pulse was 130, small; no fever. The attending physician informed me that the patient passed an abundance of dark smoky urine, which statement I was permitted to verify soon after my arrival.

The previous history in this case is important. About one year ago this woman gave birth to a seven-months still-born fetus. Three years ago she was delivered of a monstrosity. She was married five years ago. During the latter third of her last pregnancy she suffered some from headache, dizziness, and blindness, at times with nausea. During her previous pregnancies she was normal, so far as the attendant could determine.

At 6:15 A.M. of the above date we began the following treatment: Norwood's tinct. veratrum viridi 30 minims, hypodermically, followed with pilocarpin muriate $\frac{1}{3}$ gr. under the skin. Hot bottles were placed about the patient at 6:30 A.M. and 15 grs. calomel given in one dram of soda, by the mouth. At 7:15 she had another severe convulsion. Each of these two spasms was of two minutes in duration. At 7:30, 20 minims of veratrum was given under the skin. At 8 A.M. the patient was perspiring, resting easy. Pulse had fallen to 80 per minute. At 10 A.M. she had a light convulsion, and 5 minims veratrum were given hypodermically. At noon patient recovered consciousness, and conversed with attendants; mind cloudy. Marked ecchymoses over both masseters, the result of the convulsions. At 3 P.M. she had a light convulsion, and another and the last one at 10 P.M. Free catharsis at this time. The last convulsion was followed with a hypodermic of 10 minims veratrum.

The attending physician and myself were with the patient continously for twenty-four hours. During this time she voided 70 ounces of urine, drawn with the catheter, being therefore, rather an excess than a suppression of this excretion. On my return home the following day, I brought a sample of patient's urine, with the following result on analysis: s. g. 1012, alkaline, albumin abundant, pus, blood, renal and bladder epithelium; no casts detected. I should also mention that the patient suffered a partial laceration of the perineum during delivery.

The convulsions having ceased, the patient was placed upon bland diet, absolute rest and quiet, close attention to all the emunctories, and iron chlor., strychnia and benzoic acid in combination, internally, and in alternation with liq. ammon. acetat., each every four hours. Under this treatment she was able to leave her bed at the end of four weeks. On August 21, the urine, on analysis, gave: color milky; odor fetid; sp. gr. 1016; alkaline; no blood, but pus, albumin and epithelial detritus; quantity 60 ounces in twenty-four hours; granular casts present. August 28, analysis reveals about the same condition as before.

September 13, urinary analysis, sp. gr. 1020; albumin; pus diminished; slightly acid; abundant renal epithelium and a few granular casts.

October 23. I saw the patient personally at my office. Her outward appearance was not far from normal. She had no edema; was constipated; had a good appetite; no disturbance of vision and no headache. She *had dull pain in the right loin*, but not tender to pressure. Described pain as in the region of the coccyx. She had a quite marked leucorrhea: pulse 70; tongue clean; urine abundant; odor fetid; light yellow, white sediment; slightly acid; albumin present. Pus cells in small quantity, also epithelium, with here and there a granular cast. She has taken no medicine for three weeks. I put her back on strychnin and benzoic acid, $\frac{1}{32}$ gr. of former and 5 gr. of latter every four hours. The patient is still under observation.

In regard to this case we interrogate ourselves in this wise: Is this a case of chronic unilateral suppurative pyelitis? If so, had it anything to do with the previous pregnancies? Was the last pregnancy a complication rather than a cause of Bright's disease? What about the future of this woman? Before closing this case I desire to emphasize the value of large doses of veratrum viride in the treatment of puerperal eclampsia.

Case 4.—About 11 P.M. of Sept. 6, 1898, I was hastily summoned to the bedside of Miss G., aged 30 years, a healthy, robust, and exceptionally intelligent young woman. I found her apparently in great agony. She was wandering about her room in a delirious and somewhat dazed mental state. However, I detected the odor of carbolic acid and surmised the rest. After a short interval the patient gave me time enough at least to find the internal surface of both lower limbs badly burned from the body down. Her pulse at the time was 120, temperature normal; shock. I gave morphia et atropin $\frac{3}{4}$ gr. hypodermically. The effect of this, together with the anesthetic action of the carbolic acid, calmed the patient sufficiently to enable her to give me the following account of the accident:

During the day she had taken a long ride, and as was her custom after such a journey, at bedtime she repaired to the bathroom and proceeded to take a vaginal douche of hot water with a small quantity of carbolic acid added. On this occasion she poured the acid in the fountain syringe first, following this with the hot water. On opening the stopcock with the vaginal tube in position, of course, carbolic acid in a pure state passed rapidly into the vagina and out over adjacent tissues and down the limbs, before the patient could realize what had happened. At this instant she withdrew the vaginal tube. I afterward found that about two ounces of the acid had been used, the mistake occurring because the electric light in the room was not in order.

We applied a temporary carron-oil dressing. On the following morning a more rigid inspection revealed the vaginal mucous membrane entirely destroyed from the cervico-vaginal juncture posteriorly, extending laterally around the vagina and involving also the anterior two-thirds of this tissue. The eschar

also included the urethral orifice, both nymphæ, both labiæ majoræ, the anus and both buttocks, with deep furrows down the internal surfaces of the thighs and legs. Dorsum of both feet were also burned. The treatment was anodynes internally as required. A vaginal tampon of sterilized cotton saturated with 50 per cent. borolyptol in sterile water, was repeated every twelve hours. On the third day after the accident the mucous membrane of all the parts involved came away entire. It might be remarked that the patient was soon to be married, and was, therefore, quite solicitous as to the result upon the vaginal tissue, it being highly important that no marked atresia should result. Without entering upon a prolix report, suffice it to say that the patient made a good recovery with no perceptible vaginal contraction. I last saw her on Sept. 28, 1898.

I desire to call attention to the rapidity with which normal mucous membrane is reproduced under favorable conditions, also to the fact that no renal compliations developed in this patient. In our limited reading we are unable to recall an accident with carbolic acid similar to the one recorded above.

Case 5.—This lady first consulted me July 1, 1898. She is 39 years old, a widow and the mother of two children, the younger of whom is nine years old. She relates that for the past three years she has menstruated every two weeks, flowing from five to six days each time. Intestinal flatulence is marked; constipation. She has bearing-down pain and severe headache; is very "nervous," and sleeps badly at night; has leucorrhea. She has had local medical treatment for two years, with no improvement. Digital touch reveals a lacerated perineum. Uterus somewhat prolapsed; os admits the index finger; uterus painful; ovaries normal. On further examination we find the cervix elongated and slightly lacerated on one side, the cervical canal patulous and filled with a plug of tenacious mucus. There is marked cicatricial change of the mucous lining of the canal; endometrium is sensitive and bleeds easily Depth of uterus is 2½ inches. We advised curettement, with amputation of the cervix, and perineal closure, as a procedure offering the best prospects of recovery. To this the patient consented.

On Nov 10, 1898, the patient was placed under chloroform. With the assistance of Drs. J. F. Breakey and L. P. Kapp and Misses Brigham and Cotter, we removed a large mass of fungosities from the endometrium with a sharp curette. The cervix was repaired by a Newman's tracheloplasty,[1] and the perineum by an ordinary flap-splitting method. The patient made a rapid recovery with no rise in temperature nor pulse-rate at any time, and no pain, all wounds healing by first intention.

I will describe briefly the technic of a Newman's tracheloplasty. Grasping the lips of the cervix with an ordinary bullet forceps, the uterus is drawn well down and then cut through the posterior cervical tissue from within outward and a few lines below the cervical canal, thus making a posterior flap. The anterior flap is made next by the same method. You then have the cervical stump left in the grasp of the bullet forceps. Draw this down, and with curved serrated scissors cut the stump squarely off on a level with the flap formation. The flaps now fall together and are stitched to the cervical mucous membrane at the point of amputation. The first suture is passed through both the middle of the posterior flap and the mucous membrane, and then on each side of this a slightly radiating suture is passed through the same tissue, and the same procedure is followed with the anterior flap. Then on each side of these the flaps are brought together by as many sutures as are needed, each suture being tied as soon as placed. The first three sutures in each flap are left long and knotted on the outside to facilitate their removal after healing is complete. Silkworm gut is the suture material used.

Criticism.—Newman's method is no doubt a good procedure in all cases in which the cervix laceration is trivial, but in which the tissues of the cervical canal have undergone a marked cicatricial change, in cases of marked patulous os. In the above case we used the full-curved Hagadorn needle, but the leverage of the needle-holder is such as will frequently break the needle and delay the work. From this it would seem better to use a short, half-curved needle. We also believe that posterior flap suturing should be done first, as this renders the method much less difficult than when anterior flap suturing is the beginning step.

[1] Journal Am. Med. Association, Vol. xxxi, p. 565.

Case 6.—The subject of this picture is a young man, 26 years old, of good ancestry, strong and robust. About the first day of last June, while under a violent physical strain, he produced a right inguinal hernia. As is often the case under such circumstances, he repaired to a drug store, where a truss was applied. The first attempt being a failure, a second instrument was adjusted, with results about as before. The patient, tiring of these repeated failures, consulted me about November 5 in regard to his condition. I found what *appeared* to be a complete oblique inguinal hernia on the right side, easily reducible but difficult to retain. The hernial sac slipped well down into the scrotum, and its contents were massive. The patient being very solicitous for relief, if possible, we suggested operative interference, to which he consented.

On November 21, after a careful preparation, assisted by Drs. J. F. Breakey and L. P. Kapp, we proceeded about as follows: We started out to do a Fowler's herniotomy. The first incision, beginning at the pubic spine, was carried parallel with the os pubis for about one inch, and then curved obliquely outward and upward upon the line which marks the general direction of Poupart's ligament, until a point was reached corresponding to the level of the internal ring. Skin, fat and fascia to the aponeurosis of the external oblique were included in the first incision. The curved flap thus marked out was reflected back and the entire region involved in inguinal hernia, the inguinal canal, external abdominal ring and the site of Heselbach's triangle brought to view. Slitting up the anterior wall of the inguinal canal to facilitate the work, we began to isolate the hernial sac and cord together. About the first thing we found was that we were dealing with a *direct* inguinal hernia, strictly a ventral hernia, with a large opening. The next thing that we *did not* find, at least in its proper place, was the spermatic cord, and to make it still more interesting, we came upon a hydrocele of the cord. This was dealt with first. Opening the hydrocele sac, we emptied its contents thoroughly, mopped the sac with bichlorid, tied it off with catgut and left it to itself. Then began the search for the cord. This we found behind and attached to the internal surface of the hernial sac; in other words, the hernia had pushed itself through between the cord and Poupart's ligament. The spermatic cord was now easily separated from the sac for the required distance. Having the sac thoroughly isolated, we slit it open to reduce its contents. We found quite a mass of omentum adherent to its inner wall. This was loosened with the finger, and together with the protruding intestine, passed back into the abdomen, the sac, thoroughly cleaned out now, with the operator's finger in the slit, to prevent tying in intestine, was tied with stout catgut on a level with the muscular structures of the region. After tying, the ligature was passed through the stump and again tied to prevent its slipping off, and the hernial sac was then severed a half inch external to this ligature. The stump was then again sewed with a through-and-through catgut suture, then two interrupted sutures were taken between the internal ring and the stump, catching the divided muscle and at the same time the transversalis fascia. The next four sutures were taken through divided muscle and also the end of the stump. Below the stump we brought out the spermatic cord external to the anterior inguinal wall, with, however, two sutures between it and the stump, thus passing the next suture just close enough to the cord so that it rests easy in its new ring. Each remaining suture was passed through Poupart's ligament on the outer margin, and included the conjoined tendon and aponeurosis of the external oblique on the inner, each suture also catching up the transversalis fascia, the last two sutures also passed into the rectus muscle, thus absolutely obliterating both the inguinal canal from the point of incision, and also the external abdominal ring. The skin flap was closed with intermitted silkworm gut sutures. The procedure left the spermatic cord in its transit below the site of the perineal protrusion, in a new channel immediately under the superficial fascia. Healing was by primary union throughout, except at the upper angle of the skin wound, where granulation took place, owing to a faulty coaptation. Patient had no rise in temperature, pulse never above 70; some flatulence the first night.

During the first evening he also vomited some. Chloroform was the anesthetic used. Was out of bed on the twelfth day, but will not be permitted to do any labor for six weeks or two months.

I might say a word regarding the general preparation for such work, or any ordinary operation. When one is doing the work in a hospital everything is supposed to be aseptic. In a private residence this is not so, yet an apartment may be rendered safe with the proper precautions. First, the room to be occupied should be divested of all drapery and unnecessary furniture. The walls and woodwork should be dusted with a moist cloth and the woodwork washed with 1 to 1000 bichlorid solution. The patient should take an antiseptic bath on the morning of the operation.[2] The field of operation must be thoroughly scrubbed with antiseptics two or three days previous and continued up to time of operation. The catgut sutures should be immersed in ether for from thirty-six to forty-eight hours, then taken out and cut in the required lengths, each suture wrapped in tissue paper and then sealed in a small envelope and subjected to 300 degrees of dry steam heat for three hours just previous to the operation. These envelopes should not be opened again except as needed by the operator. Silkworm gut should be boiled for one and one-half hours in a glass jar immersed in water.[3] Both the operator's and assistant's hands must be aseptic and kept so, until the work is complete. The same also applies to the field of operation.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular Meeting, Jan. 13, 1899.

Dr. WILLIAM L. BAUM officiated as chairman of the meeting.

Dr. HOMER M. THOMAS read a paper on the

MECHANISM OF NEBULIZATION IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

He said that in recent years much progress has been made in the study of the mechanism of medicated vapors in phthisis, and that in the address of the evening, it would be taken for granted and as proved that nebulized medicaments reach the pulmonary alveoli both of the lungs of animals and of the human healthy lung. Formerly our medical resources in local nebulized medication were supposed to be confined wholly to the treatment of the larynx, trachea, larger bronchial tubes, and in the very rarest of instances to the opening of the smaller bronchial tubes. Such was the status of our knowledge of this subject at that time. All text-books on physiology state that inspired air does not reach the air vesicles. These statements have been handed down for a long time. It is now well established that oil globules suspended in the air do reach the air vesicles. If there is any function whatsoever residing in the air vesicle, if there is absorption of gases from the air vesicle on the one hand, and the excretion of gases on the other, from the blood current into the air vesicle, then there must be a current between the air in the larger tubes and that in the air vesicles. It may be that this is merely a diffusion of gases. But the only difference between the current in the diffusing of gases, and the larger current that is recognized as such, is merely one of volume. We have in the existence of pulmonary tuberculosis sufficient evidence that foreign bodies find their way into the air vesicles. If the tubercle bacillus can find its way into the air vesicle, and can fall on its wall, it follows that suspended oil globules can likewise find their way into the air vesicles and fall on the wall. It is true, we have cases of tuberculosis in which infection is primarily through the bronchial glands. In others we have tuberculosis in which the primary infection takes place in the wall of the air vesicle itself, and there is no law by which the tubercle bacillus as a foreign body would differ from an oil globule. In dust pneumonias, particles of foreign material inspired with the air find their way into the air vesicles. I recently made an experiment in which a young guinea-pig secured from a place where the air was perfectly pure was placed in an atmosphere of vaporized oil. At the end of half an hour the pig was killed, the lungs removed, instantly frozen, and in the epithelial cells of the air vesicles oil globules of considerable size, and easily recognized as such, were demonstrated. Some of the specimens were hardened in osmic acid, and the oil within the epithelial cell or vesicle stained nicely with the acid.

The first question then to determine is whether the medicament can reach the origin of the disease, and the second is, will it prove effective when it has reached it? The air vesicle route would seem a reasonable one, since tubercle bacilli are discharged through the air and are found in the sputum. The absence of general infection in curable cases shows that the possibility of connection with blood-vessels is not large. All inflammatory areas are areas in which the mechanism of extra-vascular interchange is materially interfered with. The point more directly put is this: Large numbers of tubercle bacilli are discharged by the air vesicles. Few get into the blood or lymph current; therefore the air vesicles must be in closer touch with the tubercle bacilli. The presence of large quantities of pigment from the air around tubercular areas would show that considerable absorption through the lymphatics from the air vesicles is still possible. If we allow that air currents do not penetrate to the air vesicle, we meet the assertion that suspended solids will not go beyond the zone of air current. Beyond the zone of air current, interchange of gases must be by diffusion. Diffusion is only a substitution of smaller currents for the larger currents that are recognized as such. An oil particle having reached the area beyond the limit of current, finds there a greater probability of falling on the epithelial covering and of being absorbed therefrom than if it had reached only to a zone of current, for in such an extra-current area no force is operating save gravity. In an area of currents, these currents overcome the operation of gravity, and the foreign matter is wafted out. Again, on reaching an extra-current zone, it falls on squamous epithelium, and encounters actively phagocytic cells; whereas, in a zone of current, it falls on ciliated epithelium, and is wafted to the outside. These mechanic laws would hold true whether the foreign body be tubercle bacilli, dust, or oils in suspension. We have now several times thrown oil thus suspended into the smaller tubes and air vesicles of animals and of man. These have been demonstrated within the epithelial plates, and free in the air vesicles, both by examining fresh specimens made by freezing, and by examining specimens stained with osmic acid.

Admitting that this is true, when we speak of healthy lungs, is it true of tubercular lungs? Oil globules suspended in the air will reach the air vesicles and cavities of tubercular lungs just as well as though those lungs were healthy. But if there are considerable zones in which the air vesicles are obliterated, these zones would necessarily be difficult to approach from the side of the air vesicle. Oil globules falling in the air vesicles of the neighborhood would be picked up by the phagocytes, thence absorbed, and finding their way into the lymph and into the blood, would reach these masses of tubercular overgrowth with as much readiness as they could be reached in any other way. But it would seem clear that the presence of large areas without air connection would make access through air routes somewhat difficult. In treating cavities of the lungs that are accessible to the air current, there is certainly a very large field for nebulized medication. There is no pathologic reason why a phthisic cavity accessible to the air current can not be antisepticized in this way. There is no reason why an alveolar cavity should not be disinfected with antiseptic nebulæ just as readily as a bronchiectatic. Where there have been pathologic changes in the lungs, we strike a limitation to the natural respiratory process. Doubtless much of the inhalant would be diverted to those portions of the lung which are compensating for the diseased areas. In inspiratory tuberculosis, up to the time we have necrosis of lung tissue there is a portion of a lung considerably blocked by catarrhal products both within and without the alveoli. In tuberculosis due to infection from the lymph- or blood-cells, we have a focus upon which it is deposited extra-alveolar. This focus is usually surrounded by more or less connective tissue growth, which theoretically would seem to offer a serious barrier to passage of any vaporized medicament through the alveolus, even supposing through osmotic action or any other process such a passage were possible. It is probably true that inspired solid particles do not reach beyond the area of ciliated epithelium, but in the form of nebulæ as here produced there is an intimate mixture of the molecules, which favors passage beyond this area. Diffusion is a molecular rather than a gross current. The residual air in the lungs is changed every seven inspirations.

[2] For two days previous to the operation we are in the habit of giving small doses of strychnia three times a day, and a little morphin just before beginning the anesthetic.

[3] H. O. Walker, M.D., Leucocyte, Vol. vi, p. 8.

Admitting that encapsulated tubercular foci can not be reached by nebulized medicaments, is there any known therapeutic agent which can reach them? I know of none. Nature has walled them off by connective tissue barriers and in that way makes an effort to effect a cure. Therefore, the most rational way to locally treat these tubercularly encapsulated foci is to render healthy and antiseptic the contiguous areas. In this way we afford a greater opportunity for vital resistance and maintenance of healthy functional activity of contiguous areas.

I now wish to report the history of two experiments which were taken with a view of demonstrating to what extent vaporized nebulæ would penetrate the alveoli of tubercular lungs in the human being.

The first case was that of a male, 35 years of age, in the second stage of pulmonary tuberculosis, who had a cavity in the right lung at the third interspace, to the right of the main bronchial tube. An operation was performed upon this patient by Dr. Murphy, the third rib resected, and the cavity drained. Two days after the operation the cavity was packed with antiseptic gauze, saturated with starch solution. The external opening in the chest was hermetically sealed, so that it was not possible for any air to enter from without. A nebulized mixture of 10 per cent. of pure iodin in liquid petrolatum as a base was used. Pressure to produce the nebulæ was secured by hydrostatic means; that is, water was introduced into a thirty gallon tank and allowed to run until the pressure of air equaled the pressure of water, some twenty pounds to the square inch. As the air was drawn off for nebulization, the water rose in the tank. When the water had reached the top of the tank, the nebulæ was stopped until the water had run out of the tank, and the tank filled with air, then the water was allowed to enter again. This process was a little tedious, and the respiration of the iodin mixture was interrupted, but the whole time of nebulization was about thirty minutes, with interruptions of about five minutes and inhalations of about four minutes. At the end of the time the starch gauze was removed from the cavity and was found, both by microscopic and macroscopic examination, to show the typic starch reaction of iodin—a blue color. This experiment appears to prove conclusively that this cavity was medicated by the iodin.

The next case—and I am indebted to Dr. George W. Johnson for his courtesy in assisting me—was that of a man at Dunning, who was in the third stage of phthisis and was dying. A nebulized mixture consisting of liquid petrolatum, slightly flavored with oil of gaultheria, was given to him for about twenty minutes. It was administered from the same apparatus as previously described, and there were the attendant interruptions in its use. About twenty minutes covered the consecutive time of nebulization. Shortly after the man's death a postmortem was made by Dr. Johnson, and specimens of the lung were taken to the Columbus Medical Laboratory and carefully examined by Professor Evans. The specimens sent consist of three pieces of lung. The larger one is an apex. In it are two large irregular cavities about the size of a walnut. The apex proper seems to be entirely free from involvement. The smaller pieces are filled with miliary tubercular nodules. Pieces were taken from the apex away from the tubercular area, from the tubercular area involving the wall of the cavity, and from the smaller pieces containing the miliary nodules. One set of each was frozen, and the fresh sections showed oil globules within the epithelial cells that lay loose in the air vesicles; that is, the air vesicles contained clear, round globules. Another set was thrown into 1 per cent. osmic acid. Hardening was completed with alcohol. They were imbedded in paraffin and cut. Some were stained in 1 per cent. aqueous thionin, some in 5 per cent. aqueous saffranin, and some were mounted unstained. In a moderate number of the air vesicles large, flat epithelial cells containing round black masses are seen. In many air vesicles, small round black sharply refracting masses are found free in space. In addition, and especially in the specimen taken from the tubercular area involving the wall of the cavity there is much pigment. This is angular; the osmic stained masses are globular. The fresh and the osmic showings taken together demonstrate the presence of oil in the air vesicles. The microscopic slides exhibited demonstrate conclusively the accuracy of what has been stated.

The practical point which we all look to in this experimental work is its application to the treatment of pulmonary tuberculosis. Since it is pathologically proven that nebulized medicaments can penetrate the alveoli of the lungs, it would then seem that they are a necessary adjunct in the treatment of pulmonary tuberculosis. The apparatus that we are using now, a nebulizer designed by myself, solves the question of the mechanism of vapor production. Its weakness lies in the therapeutic action of the drugs that we are using. The experience I have had in treating these cases in this way, not neglecting other therapeutic agencies, has led me to favor the generous use of antiseptic oils, particularly the Ceylon oil of cinnamon, Merck's oil of cloves, oil of eucalyptol, beechwood creosote, thymol, and the chemically pure oil of wintergreen.

At Dunning there has been recently established a tubercular hospital with a capacity of 380 beds. One of the equipments for treatment there is an abundant supply of chemically pure air compressed at a pressure of some forty pounds to the square inch. This is supplied in such volume that it is possible to nebulize the antiseptic oils I have mentioned day and night and keep tubercular patients in an antiseptic atmosphere all the time. As yet, it is too soon to claim anything definite for this treatment there, but it seems to me, that so far as we have gone, the results are gratifying, and that the pathologic basis of the treatment is so scientifically established that we have one means at least in the treatment of pulmonary tuberculosis which is an invaluable adjunct, and the use of which should never be neglected.

Dr. GEORGE W. JOHNSON—Dr. Thomas has demonstrated that foreign bodies suspended in air, and the essential oils, when nebulized and respired, reach the alveoli and every portion of the lungs where air in any form reaches. This proposition is proved. What is of greater concern is to demonstrate that medicaments introduced through the pulmonary air-passages, reach the interior of those areas, that by reason of pathologic processes are cut off from the influence of the lymphatic blood current and air-passages. What are the pathologic conditions we have to deal with? Briefly, these: Lowered vital resistance in the lung elements; development of tubercle bacilli in these tissues; hyperplasia of the fixed cells; formation of epithelioid cells; development of knot-like foci where the tubercle bacilli multiply; giant-cell formation in which there is no new capillary formation, inflammation, degeneration of the blood-vessels, lymphatics and air-passages in these areas, leucocytosis, further retrograde changes, mixed and secondary infection.

The process and method of invasion and encapsulation up to this point are complete and thorough. No avenues for reaching these areas are left open; the air is shut out; the lymphatics are closed; no blood enters, and no new capillaries are formed. The vital resistance is constantly being lowered and new invasions being made. These foci can not be reached by any known law of osmosis or dialysis. In the later processes of breaking down and cavity formation, I believe air reaches many of these areas, for if it did not, we would not have the physical findings we use in demonstrating cavity formation.

That medicated vapors have a beneficial influence on those parts of the lung that they reach, there is no doubt. In such places the laws of osmosis and dialysis co-operate to aid in the prevention of new invasion. That vapors do not reach the encapsulated areas is no argument against the efficacy of this method of treatment. For neither can these areas be reached through the blood nor lymphatics by antitoxins or any other method of hemotherapy, for no blood-vessels or lymphatics reach these forbidden fields. That vaporized medicaments enter tubercular cavities, I think Dr. Thomas has also conclusively demonstrated. Now, the real value of the presence of vapors in the cavities and elsewhere in the pathologic line depends much upon their constancy and the medicament used. Dr. Thomas has done his work well; the field is still open for the therapeutist.

Dr. WILLIAM L. BALLENGER—I have had slight knowledge of the work done by Dr. Thomas since its inception, having seen some of his earlier experiments with medicated vapors, as demonstrated on animals, and in those early experiments he demonstrated the presence of oil globules in the lung tissue. At the time he was making his first experiments, I remember hearing him, in conversation with brother practitioners, state what he was doing, and some of them assured him that this work had been gone over very thoroughly, and it had been conclusively demonstrated that medicated vapors did not penetrate to the air vesicles. But Dr. Thomas has persevered in his efforts, and I presume, without doubt, has demonstrated the fallacy of that statement. Whatever medicament is used, it must do its work, as has been suggested by Drs. Thomas and Johnson, not by entering the diseased area itself, which seems at present to be impossible, but to get into the tissues contiguous to the diseased areas and thus limit the progress of the pathologic process. I doubt very much if any vapor that has been used so far will have any very marked effect in arresting the progress of tuberculosis. I have no doubt that some time in the future, if similar investigations are pursued in the light of the demonstrations that have been made, something will be found either in the nature of an animal product or otherwise, that will stimulate cell activity, that may be introduced

by means of a nebulizer, as well as through the blood current itself, and in this direction is the hope of the future for tuberculosis. While I do not believe anything that has been used up to date will be found efficacious to any very marked degree, yet in a measure something will be found, and Dr. Thomas and others are upon the highway to the successful medical treatment of tuberculosis. I believe that the treatment, whatever it may be, should not be directed toward the extermination of the tubercular germs; that is not the idea, but it is toward the stimulation of the cellular structures of the system of the patient to resist the invasion of these germs, as well as the toxins which are manufactured and thrown out by the germs themselves. There is a latent reservation in my mind always in regard to disease, and that is this: If we only knew in what direction to extend our energies, or if we only knew the means by which we could stimulate cellular activity, all disease could, if taken in its earlier stages, be arrested. I believe the time is coming when such diseases as carcinoma may be controlled, if attacked before too great destruction is done. This is a law of natural life and its preservation that must be true; so that however discouraging our efforts in the treatment of tuberculosis, and that other disease, carcinoma, may seem, it is yet worth while to continue researches for years and centuries, if need be.

Dr. HENRY GRADLE—Dr. Thomas has undoubtedly proven the point he wished to emphasize tonight, namely, the possibility of getting nebulized oil as a vehicle into the lung alveoli. We should fully admit it as a proven fact, and congratulate him on his success. By his experiments and work in this direction he has opened up a vista of therapeutic possibilities. But there is a great difference between therapeutic desiderata and actual facts in therapeutics. Our prospect of accomplishing anything in this manner for the present in the treatment of tuberculosis is not very flattering, not so much on account of mechanic difficulty of getting nebulized vapors into the lung, because I think he has overcome that, as the inficiency of the drugs at our command. One or more of the gentlemen present daily see tuberculosis in a locality where it is directly exposed to view and can be treated by drugs. I refer to lupus. Others amongst us have, in their practice, tubercular ulcers in the larynx, equally accessible to direct medicinal applications. But who can cure these lesions by the local influence of drugs? Hence, the therapeutic possibilities are not so much within our grasp as a listener might think in hearing this paper. Possibly further efforts may lead to satisfactory results in the treatment of other diseases that are more amenable to drug influence than tuberculosis, and perhaps even in tuberculosis, by influencing the secondary infections which play so serious a rôle in tuberculosis of the lung.

Dr. HAROLD N. MOYER—I feel like adding to the praise that has been accorded Dr. Thomas for the experimental scientific work he has done. Although it is opposed to some preconceived notions, it may have its value in the future. After all, I fear we may get away from the basic principles that underlie the tubercular process, whether it affects the lung, or other tissues of the body. Tuberculosis is most dangerous in the nervous tissues and in the lung, especially in the latter. I believe it is well settled that tuberculosis of the meninges not uncommonly recovers. It is generally believed by pathologists that its peculiar deadliness in the lung is due to the character of the tissue and the liability to secondary infection. It is not tuberculosis that kills in the lung, but the consumptive process. In an old work on practice it is stated that there is no danger that the consumptive patient will become tubercular. Not long since I saw an article in which the statement was reversed, namely, the danger was that the tubercular patient would become consumptive. That is the present view. In other words, there is superadded to the tubercular process a secondary or mixed infection.

A lung with a tubercular process shows an immense amount of newly formed connective tissue. This is an effort on the part of nature to wall off the pathologic process. If nature succeeds, there is nothing left but scar tissue. The tubercular process is enclosed and the patient recovers. If the process does not succeed, secondary mixed infection takes place, we have sepsis, and the patient dies. There is only one cure, that is, by walling off the tubercular process by embryonal tissue. Whether medicated vapors are of any value in favoring such a process or not, I can not say. Perhaps they are.

We forget one other principle. In advancing infection with the tubercular bacillus, another element comes in: not the virulence of the tubercle bacillus, but the vital resistance of the cells and the possibility of the reproduction of embryonal tissue, which means the vital resistance of the patient. How much we may assist these processes it is difficult to say, but only along these lines can success be reached.

Dr. ALEXANDER H. FERGUSON—I would like to ask Dr. Thomas whether he has any knowledge from his experimental work or that of others that the antiseptic oils have a stimulating effect upon granulation tissue. If the antiseptic oils have a deteriorating effect upon the granulation tissue which nature throws around the tubercular focus, then they would only do harm. In surgery we deal with tubercular joints; we inject them with iodoform emulsion in glycerin or olive-oil, and we maintain that by that means granulation tissue is stimulated, believing that it is the best fighter against tubercle bacilli.

Dr. THOMAS (closing the discussion)—My original animus in this work was more to personally vindicate a proposition than to scientifically carry a point. The possibility of vaporized medicament entering the pulmonary alveoli was so vindictively opposed some three years ago that these investigations grew out of the feeling at that time that it could be microscopically demonstrated that they did. The aim of all scientific workers should be in the line of arriving at the truth. None of us should maintain a dogma, as such, unless we can prove it; and there is no greater problem at the present day confronting physicians than measures for the alleviation or cure of pulmonary tuberculosis. It seems to me that fundamentally we have to rely, for any value nebulization may have in tubercular tissue, upon the scientific data which have been gathered as to the antiseptic value of the essential oils. It has been proven by careful workers that the oil of Ceylon cinnamon is antiseptic in a culture-medium of 1 part to 2100; that of the oil of cloves is antiseptic in 1 part to 1150, and so on, representing large antiseptic powers. I am painfully aware of the truth of the remarks of Dr. Gradle as to the inefficiency of antiseptic solutions in laryngeal tuberculosis. My effort has been to maintain before you that there is a natural route for treatment, by inhalation, leaving the larger question as to the selection and use of drugs to the experience and scientific research of the Fellows and others of the Academy.

I think the consensus of opinion among physicians is that there is no danger from the use of nebulæ. If the respirations of a tubercular patient are 20 per minute, during twenty-four hours he would make over 28,800 respiratory efforts. If during that time he is drawing into the lungs nothing but an antiseptic medicament, and if there is any truth in the observations of those who have investigated the antiseptic properties of these oils, it would seem theoretically that the soil for the extension of tuberculosis would be markedly inhibited.

In reply to the question of Dr. Ferguson, as to whether the use of nebulæ has a stimulating effect on granulation tissue which surrounds the tubercular focus, the researches of Vaughan and McClintock tend to show that the effect is not so much a stimulation as an inhibition. If that be true, they have a definite place in the therapeutic treatment of tuberculosis.

Cincinnati Academy of Medicine.

Regular Meeting, Jan. 30, 1899.

Dr. LOUIS SCHWAB, president of the Academy, occupied the chair.

The evening was devoted to case reports.

Dr. C. E. CALDWELL exhibited a girl of about 7 years of age on whom he had made an operation late in September of last year for genu valgum involving the left knee. The operation merely consisted of a linear osteotomy, Macewen's operation, with forcible straightening and retention in position in a plaster-of-Paris cast for about four weeks. The operation had been entirely successful, as after that length of time she had been able to walk without a dressing of any kind and without noticeable limp. The right leg was affected by a similar condition, but far less pronounced, so that he did not consider operative interference necessary. In addition to the genu valgum of the left side there was also a decided angular bend of the left femur forward, but he had not attempted to relieve this in the first operation, fearing a bad result with two fractures so near together. He believed the latter condition to have been superinduced by rickets. He had presented the patient to illustrate that in even most pronounced cases of this affection—and this was certainly most pronounced—linear osteotomy was sufficient to correct the deformity. He deprecated Ogston's operation of sawing off the internal condyle, because the joint being opened, danger of a stiff joint was greatly to be feared. Photographs showing the condition before and after operation were presented.

Dr. HEADY presented a specimen of perforating round ulcer of the duodenum, the second that he has reported within a year. In this case death with symptoms of shock had resulted very rapidly. Postmortem examination showed a large ulcer with clear-cut margins involving about one-third of the cir-

cumference of the bowel. The ulcer was situated about an inch from the pyloric end of the stomach.

Dr. ALBERT FREIBERG presented a specimen of arteriosclerosis involving the lower portion of the right femoral artery and the beginning of the popliteal. The specimen had been taken from a man on whom he had that day made an amputation of the lower third of the thigh for gangrene of the foot. The patient had suffered a slight traumatism of the right great toe some little time ago. Examining it himself he had noticed a peculiar blanched appearance. Examination by the physician showed the posterior tibial and dorsalis pedis to be without pulsation and existing as firm painful cords. Gangrene gradually supervened in the great toe, eventually spreading to the other toes, to the dorsum of the foot and finally to the sole almost as far as the heel. On the left foot several superficial gangrenous spots developed, but there was not present abolition of circulation as in the other foot. Within about a week of the primary attack, an almost similar condition came on suddenly in the right forearm, and absence of the radial pulse. Circulation was, however, re-established in about four days, and no gangrene appeared. In consultation with the attending physician, and with Dr. E. W. Walker, amputation was decided upon and the lower part of the thigh selected. But slight constriction was made above the point selected; after amputation the main trunk was tied and the constriction then loosened, but no hemorrhage, such as is usual from the small superficial vessels, followed. On account of this fact he had great doubts as to the success of the operation.

Dr. B. MERRILL RICKETTS did not advocate the use of the Esmarch bandage in these cases, claiming that it increased the dangers of sloughing.

Dr. FREIBERG said that he had not made a tight constriction, and claimed that the principal objection to the Esmarch bandage was the vasomotor paralysis it produced, its withdrawal causing increased hemorrhage of the small vessels, the latter necessitating an increased number of ligatures, thus delaying the operation and increasing the liability to suppuration by the added amount of foreign material present.

Dr. GAU exhibited a new instrument of his own invention which he has named the "recto-pelvic depressor." It was intended to pass into the rectum behind the uterus or left appendages, and with the other hand in the vagina a very satisfactory bimanual examination could be made. He regarded it as especially valuable in retroflexions and retroversions of the uterus. It should not be used in acute inflammations of the pelvis. As regards the exact uses and contraindications, he was not prepared to say. On the cadaver he had been able to bring the instrument to between two and three inches to the right of the middle line, so that if this could be done on the living subject the right appendages could also be examined by this method. However, he thought that this could be done on but a very few, if any, living subjects. The instrument was of the shape of a male sound, with the curved end beveled and flattened to about five-eighths of an inch wide and one-eighth of an inch thick. The instrument had been used and commended by Drs. A. W. Johnstone and C. D. Palmer.

Dr. A. W. JOHNSTONE, in speaking of the invention, said that while the instrument was new and sure to prove useful, the idea was an old one, as he had himself been using for years an ordinary male sound for the same purposes proposed by the inventor. He also spoke of the value of the instrument in backward displacements of the uterus. He did not think that it could be used more than half an inch to the right of the median line.

Dr. C. A. L. REED also spoke in commendation of the instrument, though he had not as yet used it. Dr. Reed reported a case of a young woman who had come under his care about a year ago with a history of more or less irregular attacks of pelvic pain followed by a discharge of pus from the rectum, with subsequent relief for a while. He thought, as he was able to find a swelling a little posteriorly and laterally to the uterus, that the pus was coming from a large pus-tube, and proceeded to drain through the vagina. This operation gave her so much relief that she declined to submit to the more serious one of obliterating the pus pocket. The wound in the vagina having been allowed to close, the attacks of pelvic pain and rectal discharge of pus again began. An abdominal section having been consented to, he was surprised to find, after the patient had been anesthetised, an enlargement in the lower abdomen on the side opposite the original swelling. On opening the abdomen this tumor was found to be a large parovarian cyst with such firm adhesions that the bowel was injured in dissecting away the mass. After repairing the bowel he determined not to open the pus cavity of the opposite side, but to drain through the vagina, as before. The patient made a very tedious recovery, and the vaginal opening having been allowed to close, the old attacks of pain again supervened. A few days ago, the patient complaining of rectal tenesmus, he made an examination and found a polypus apparently coming from a fistulous tract that itself opened into the rectum. On exploring this with a sound, he brought away a foreign body, which proved to be an incisor tooth. On removing the supposed polyp he found therein a piece of bone containing six fairly well formed teeth, in other words the remains of a dermoid. He regarded the case as rather a unique one of dental surgery. Specimens were exhibited.

Dr. H. W. BETTMAN reported a case of a man 97 years of age, with cystitis, attacked with retention of urine. Examination of the penis showed the lumen of the urethra to be filled with small, irregular calculi. These could be readily felt through the penis. They were removed, with more or less difficulty, by means of urethral forceps. The patient afterward passed some blood, but is now doing well.

Dr. B. MERRILL RICKETTS reported a case of a gall-stone lodged in the cystic duct, in a woman who had not had attacks of colic. On opening the abdomen he had found the gall-bladder greatly distended. He withdrew about twelve ounces of clear, colorless fluid by aspiration, and on opening it a little more fluid escaped, followed by a small amount of muco-pus. On exploring the cystic duct he found a large stone impacted therein, which was easily removed. The curious point in the case was the absence of jaundice.

Dr. C. A. L. REED said that far from being curious not to have had jaundice in impaction of the cystic duct, it would have been curious if jaundice had been present. If this duct had been impacted suddenly, probably some little bile would have been present in the gall-bladder at that time, and slow absorption from this source might have been sufficient to have given the faintest possible yellowish tinge to the conjunctivæ, but even this was improbable. As regarded the clear fluid present, it was the result of a catarrhal inflammation that ensued as the result of irritation and was also to be looked for. In his experience this fluid had very frequently been opalescent.

Dr. A. W. JOHNSTONE agreed with Dr. Reed and thought that the peculiar shimmering appearance of the fluid was due to the presence of cholesterin crystals.

Dr. J. C. OLIVER reported four cases of gunshot wounds of the chest admitted to his service in the Cincinnati Hospital during the last six weeks. Three of the cases, strange to say, had been in women. The first, a young married woman, about 20 years of age, had made several desperate attempts to kill herself. She had first taken a large amount of sugar of lead, but had vomited that in great portion. Next, placing a revolver over the region of the apex-beat, she fired; about an hour afterward, the first shot proving of no avail as far as dissolution purposes were concerned, she fired another shot a little higher. She was taken to the hospital, where it was found that the first shot had entered at the fifth intercostal space and at about an inch internal to the left vertical nipple line; the second in the fourth interspace. Posteriorly there was a wound of exit a little external to the left erector spinæ muscle; the other bullet was beneath the skin. The chest was promptly strapped. The day following a murmur was heard over the heart, and thought to be pericardial in origin. The chest was strapped for two weeks, overlapping adhesive strips being used, extending from beyond the middle line in front to beyond the spine behind. On removing the adhesive straps permanently, a considerable amount of pus was evacuated through the lower bullet wound, enlarged by the surgeon, which pus was in all probability from the left pleura. Since that time the discharge had gradually lessened, and the tube had been shortened daily until now it was not over an inch long. The lung had expanded, and she was in a good way to make a perfect recovery. The fact that the bullet had entered at a point where we are accustomed to locate the exact position of the apex-beat, combined with the significance of the location of the point of exit, had almost caused him to doubt that he really knew the exact location of the heart; and his second case, also in a young woman with suicidal intent, had not tended to deprive him of that belief. The ball had entered the fourth interspace on the right side, so close to the sternum that a piece of the latter had been chipped off. A good recovery had also been made in this instance. The third case, also in a woman, was an attempt at murder. The ball had struck and penetrated the eighth rib on the left side. When the opening was cleared it was found that the diaphragm had been opened, but the opening could be seen only on deep inspiration. This case had afterward vomited a coffee-ground vomit, which, when tested, was found to contain blood. In the fourth case, a man, the ball after entering had torn through the left lobe of the liver and the mesentery of the lesser curvature of the stomach. Vomiting of blood had

also occurred in this case. The patient lived but a few hours. The treatment in all the cases that recovered had been the same; complete rest of the parts injured by means of the adhesive straps applied in the same manner as in the first case. He believed that the mortality of penetrations of the chest, provided no essentially vital organ was injured, would not be large if this method could be applied very early in the case.

Dr. A. W. JOHNSTONE narrated the history of a case greatly resembling Dr. Oliver's first case, and in whom the bullet had entered at apparently the same place. The next day the man had what he had regarded as a traumatic pneumonia involving the whole left lung; there was typic bronchial breathing over this area, dulness complete, but no râles, and curiously enough no fever. In about a week this was all explained when about a gallon of pus was evacuated from the pleural cavity. After the injury the pleura had completely filled with blood, which solid mass had readily transmitted the breath sounds, causing them to simulate bronchial breathing. The blood-clot became septic and had rapidly changed to pus.

Dr. H. M. BROWN mentioned a number of cases of gunshot injuries of the chest which had been treated by adhesive straps and had all recovered; also three stab-wounds with recovery.

Dr. ALBERT FREIBERG reported a case, a carpenter, 41 years of age, well developed and nourished, who, five months ago, while carrying a scantling on his shoulder, in an attempt to recover himself from falling, felt a sudden pain in the back on the right side and also in the right buttock. Following this, typic sciatica had developed on that side. When he saw the case, in addition, a lateral curvature in the dorso-lumbar region with a slight compensatory curve in the dorsal region with elevation of the left shoulder and "winging" of the left scapula, was present. The man had not noticed the deformity of the spine previous to his injury, and it was so pronounced that he surely must have noticed it had it been present. The pain in the buttock was almost constant, and when standing the man endeavored to throw the whole weight of his body on his left leg, giving him a most peculiar slanting attitude. The thigh muscles on the right side had atrophied to the extent of several centimeters. He had looked upon the case as one of sciatic scoliosis, and had presented it on account of its rarity, only about forty to fifty cases having been hitherto reported. In these the scoliosis had been occasionally alternating, sometimes with compensatory curve. The treatment thus far had been anything but satisfactory. He now proposed, after making firm extension, to put the chest in a plaster cast.

Meeting of February 6.

Dr. LOUIS SCHWAB, president of the Academy, occupied the chair.

Dr. JOSEPH EICHBERG read the regular paper of the evening, entitled

ARTERIOSCLEROSIS.

For proper nutrition to be maintained in the body there must be four factors, as regards the circulatory apparatus, in perfect working order. These are: 1, the blood; 2, the vessels themselves; 3, the heart; 4, the nervous mechanism of the vessels. A failure in any one of these three regards will result more or less seriously to nutritive exchange. If the vessels themselves are diseased, while the nervous mechanism may be perfect, yet nutrition will greatly suffer. As regards the etiology of arteriosclerosis, a number of factors play a rôle of exceeding importance, but all can be resolved to one cause, namely, an irritative poison circulating in the blood. Chronic lead-poisoning, chronic tobacco-poisoning, chronic alcoholism, the gouty diathesis—in all there are some irritative poisons at work. The disease is specially liable to come on in those who have persistently and recklessly thrown great strain on their arterial system, as in those who follow some physically laborious occupation; in athletes, in those who lead lives of dissipation, in successful men who have for many years been subjected to severe mental strain and who, having finally settled down to the enjoyment of their wealth, find themselves prematurely aged. Thus, a man of 30 years might have the arteries of a man twice his age. Before discussing pathology, he wished to state one fact regarding the structure of arteries in their different positions; in the aorta and large vessels the elastic tissue is present in great amount, occupying almost the entirety of the so called muscular layer. In the smaller arteries, however, the elastic tissue is relatively smaller in amount, and forms the outer and inner boundaries, as it were, of the muscular coat. Thus could be explained the differences in function of these different vessels. The arteriosclerotic process affects, as a rule, the medium-sized and smaller arteries, yet the presence of atheromatous changes in the aorta is very common. It is difficult to explain why, in different cases, different organs and parts of the body seem to bear the brunt of the attack. For instance, in one case the vessels of the kidneys seem to be particularly involved, and in time a typic chronic interstitial nephritis with contracted kidney results; it is now pretty definitely settled that Bright's disease is the result of the arteriosclerosis, and not the arterial disease the result of the nephritis. In another case the arteries of the brain might be principally involved; in a third those of the heart muscle itself, the coronary; again, the arteries of the extremities. The symptoms would naturally be extremely varying under these circumstances. With Bright's disease we would have the urinary changes of chronic interstitial nephritis, the passage of a considerable amount of pale urine of low specific gravity, containing a small amount of albumin and hyaline and granular casts; the heart, especially the left ventricle, would be hypertrophied, and as a result of this combination the pulse would greatly increase in tension. In time the compensatory hypertrophy on the part of the heart might fail, and insufficiency of the valves with regurgitation follow—in other words, a dilatation might be added to the hypertrophy. The picture might then pass into that of a rupture of compensation with congestion of the lungs, dilatation with incompetency of the right side of the heart, venous congestion of the liver, and dropsical effusions into the serous cavities and into the subcutaneous tissues of the lower extremities. Or, uremic symptoms, even coma, might come very suddenly. When the coronary arteries are the principal sufferers, chronic myocarditis will result, and attacks of angina pectoris not uncommonly. Sudden death may ensue. Aneurysm is a very common result of arteriosclerosis, particularly in the larger arteries, as the aorta and the arteries of the soft tissues, the brain and retina. Rupture of the aneurysm of the brain might cause sudden death or the symptoms of apoplexy; hemorrhagic retinitis would result from rupture of an artery of the retina. In the extremities diminution of the blood-supply might cause gangrene. As regards treatment, the first point is to endeavor to remove the cause. The treatment is of necessity palliative, no remedy being able to remove the diseased tissue already formed, though some had ascribed some chemic curative properties to the iodid of sodium. Nitroglycerin and the nitrates, in causing dilatation in the peripheral vessels and rendering more equable the flow of blood, are to be commended. He recommends the Schott treatment in case of impending failure of compensation on the part of the heart; he regards it just as valuable here as in the treatment of valvular lesions with failure of compensation.

Dr. E. W. MITCHELL, opening the discussion, spoke particularly of the finding of these cases in the opposite ends of society so to speak; in the laboring man and among the wealthy classes who had striven many years for the attainment of their position, particularly among the dissipated, who, burning the candle at both ends, were unable to obtain a sufficient amount of sleep.

Dr. C. E. CALDWELL spoke of syphilis as a prominent etiologic factor, and laid particular stress on gout in this relation, in that but lately a typic case of the latter had come under his notice.

Dr. KENNON DUNHAM spoke of the frequency with which diseased arteries were found in pathologic specimens at the Cincinnati Hospital, a section in which normal arteries were present being regarded as quite a "find."

Dr. F. W. LANGDON hoped that the study of arteriosclerosis would throw some light upon certain obscure affections of the nervous system, particularly disseminated sclerosis. He also called attention to the value of the extract of the suprarenal capsules during certain stages of cardiac failure in this disease.

Dr. B. K. RACHFORD laid stress upon the presence of some poison circulating in the blood as the principal offender. The non elaboration of certain food products by the liver, resulting in an over-accumulation of urea in the blood he also regarded as of importance. So that attention in treatment must be directed to the diet and to the liver in addition to the other precepts for treatment already laid down by the essayist. Compounds of sodium were useful for the purpose, particularly the phosphate.

Dr. EICHBERG closed the discussion.

Philadelphia Pathological Society.

Meeting of February 9.

Dr. HENRY WILLIAMS read a paper on "Primary Carcinoma of the Right Suprarenal Gland." The specimen obtained was from a woman past middle life. The history had been one of progressive emaciation, and later the development of uterine trouble, for which an operation was decided on. The ovaries were highly cystic and were removed. Some time afterward

the symptoms increased in severity, and emaciation progressed to a marked degree, death occurring several months later. The autopsy showed a small nodular growth from the right suprarenal body and into the pelvis of the kidney. The gall-bladder was slightly elongated and packed with gall-stones. There had been no history of hepatic colic or jaundice.

Dr. A. O. J. KELLY was of the opinion that the case was not one of carcinoma but partook more of the nature of adenoma.

Drs. H. C. MOSLAND and W. W. BABCOCK presented a specimen of Paget's disease of the nipple, of thirteen years' duration, without carcinomatous involvement of the mammary gland. The history had been that a small ulcer had developed on the gland thirteen years previously, over which a cicatrix had formed. The cicatrix was pinched off, leaving a raw surface which constantly extended toward the periphery. Mild ointments had been applied throughout the existence of the trouble, but there had been no amelioration of the symptoms, the growth finally involving one-half of the anterior surface of the gland. An amputation was finally done.

Dr. JOHN B. SHAFER presented a specimen of villous tumor of the rectum which had been removed from a woman past middle life. The principal symptom in the case had been one of intercurrent hemorrhages with expulsion of large quantities of mucus. At one time the mass projected from the anus. Owing to the troublesome hemorrhage encountered at operation and the fact there had been profound anemia, death resulted on the following day.

Dr. H. F. HARRIS read a paper on "The Techic and Relative Value of Paraffin and Celloidin Embedding." The speaker preferred the paraffin method, as it was more liable to yield good results, especially the nuceli of the different cells being shown to good advantage, tearing of the tissues was less likely to occur, and because the specimen could be kept indefinitely.

Dr. W. M. L. COPLIN coincided with the views of Dr. Harris, and stated that he had specimens from a liver which had been injected and stained three or four years ago, the sections now being in good condition.

Dr. DAVID REISMAN stated that at the University of Pennsylvania both methods had been practiced, and that while he thought each had its advantages he was gradually being won over to the side of the paraffin method. However, he thought celloidin sections might also be well preserved. He had a specimen of angiosarcoma of the brain, three years old, which showed very distinct staining of the nuclei and karyokinetic figures. In the paraffin method bad results frequently were obtained because pathologists had cemented the specimens to pine blocks and probably the paraffin had dissolved some substance, preventing proper staining of the sections.

Dr. A. O. J. KELLY stated that in contradistinction to the views expressed by others regarding the relative value of the two methods, he was an advocate of the celloidin method, on account of the rapidity with which the work might be done and the good results obtained. He thought that with due care sections might be cut as well after being imbedded in celloidin as by any other method.

Dr. H. F. HARRIS also spoke of an easy and rapid method of preparing hematin solution, which had given good results. Pathologists had ascribed the staining properties of hematoxylin to slow oxidization, but in order to bring about the reaction or oxidization of the substance more quickly, he prepared it very quickly by boiling an alcoholic solution of the hematoxylin with mercuric oxid, which caused a rapid oxidation of the staining substance.

SELECTION.

Functional Changes in Nerve-Cells.—The current fascicle of *La Cellule* contains two contributions to a subject of increasing interest: the physiology and pathology of the pyramid cells, with reference, in particular, to the retractility of their dendrites. The fact that these researches emanate from the laboratory of van Gehuchten at Louvain lends them additional significance, for upon this point van Gehuchten, of the few men entitled to speak with authority upon the Golgi method, has expressly reserved judgment. Cajal and v. Kolliker, on the other hand, have rejected the evidence in favor of retraction, on the ground that the so-called abnormalities are artifacts, due either to the imperfection of the method itself (Kolliker), or to faulty manipulations (Cajal and Lugaro). The recent literature upon this subject has, notwithstanding, become significantly voluminous, and is constantly upon the increase. In the early stages of the development of this hypothesis, it was more or less contradictory and heterogeneous in character, since the specific function of retractility was associated by some with the axis-cylinders and their terminations, by others with the dendrites and the gemmules. Demoor has the credit of having given to the theory the trend which it has since maintained, since he was the first to institute careful experiments upon animals, and to base his conclusions upon an observed increase in the number of varicosities of the dendritic processes, as compared with the normal animal. He maintained that these changes, physiologic in character, as he believed, could be satisfactorily demonstrated by the Golgi method. The first article of Soukhanoff is devoted to a reconsideration of the work of Demoor upon an experimental basis. Demoor has asserted that the cerebra of dogs poisoned by morphin, choral or chloroform, exhibited an extremely varicose condition of the dendrites. Lugaro and Azoulay had already questioned these conclusions, but Soukhanoff, under the direction of v. Gehuchten, has again put them to the test. From a series of eight experiments upon the effects of acute poisoning by ether, chloroform and alcohol, upon three species of animals, the author concludes that the varicosity of the dendrites is not at all abnormal in amount. This renunciation of the territory won by Demoor is interesting in connection with the fact that Demoor himself, at the recent meeting of the physiologists in Cambridge, reiterated and emphasized his previous statements. Two other experiments upon the action of trional on guinea-pigs, indicated a marked increase in the number of varicosities. In addition Soukhanoff verifies the observation of Stefanowska, that invariably associated with the manifestation of retraction is the disappearance of the gemmula—"appendices pyriformes"—of the dendrites. The author interprets these changes as pathologic in character, a specific atrophy, due to the disturbance in nutrition. The second article of Soukhanoff contains the result of experimentation upon the effects of acute and subacute poisoning by arsenic, of thyroidectomy, and of inoculation with hydrophobia and tuberculin. A single control rabbit, supposed to be normal, was used for microscopic comparison. The effects of arsenic, as gathered from nine experiments, are in general, the production of a condition of varicosity of the dendrite, with a corresponding disappearance of the gemmules. The amount of the change is very variable, and not at all proportional to the amount of poison injected, nor to the length of the period of poisoning. The lesion, as the author considers it, is diffuse and not well localized, either with reference to the layers or to the superficial areas of the cortex. The same more or less indefinite result followed the inoculation of hydrophobia. The injection of tuberculin and the experimental hydrophobia produced the greatest alteration in the cortex; the number of cells affected and the extent of the change in the dendrites left no doubt as to the action of these agencies upon them. These two articles represent perhaps the most satisfactory experimental evidence, save that of Lugaro (1897), for the theory of dendritic retraction. The constancy with which the changes succeed the action of any given agency, their significance from a physiologic standpoint, and their diagnostic importance are still, however, matters of great doubt.—R. WEIL: *Jour. of Comp. Neurol.*, December, 1898.

PRAGTICAL NOTES.

For Hyperidrosis Axillaris.—Adipis lanæ 20 gm., sol. formalini 10 to 20 gm., vaselin 10 gm. M. f. ung.—Unna, *Monatsh. f. Prakt. Derm.*, xxvi, 4.

For Pruritus Analis.—Natrii subsulphuros. 30 gm., acidi carbol. 3 gm., glycerini 20 gm., aq. dest. 450 gm.: For frequently renewed compresses.—Penzoldt, *Derm. Cbl.*, January.

Vibratory Massage of the Eye.—Sneguirew determined the

amount of diffusion after vibratory massage with fluorescein, according to Bellarminow's colorimetric method, and announces that it materially aids in the diffusion of the contents of the conjunctival sac into the anterior chamber.—*Rev. Gen. d'Ophth.*, Dec. 31, 1898.

Czerny on the Murphy Button.—Czerny had three deaths from perforation when he first began to use the button, but since he renounced using it for the large intestine, for which he does not consider it adapted, preferring sutures, he has not had a single failure in over a hundred cases. He considers tying the button tight the most important point. He has performed gastroenterostomy 83 times with the Murphy button; 63 for cancer of the pylorus and 20 for non-cancerous stenosis; mortality 12.5 per cent.

Inequality of the Pupils.—An article in *Médicine Scientifique*, states that the pupils are not rarely unequal in healthy persons, evidently a congenital peculiarity. In these cases the right pupil is more frequently dilated than the left. In cases of cancer of the stomach the left pupil will be found dilated more than the right. In hypertrophic cirrhosis, the right pupil is more dilated than the left. In pleurisy, the pupil on the side affected is dilated.—*Crónica Méd. Méx.*, February 1.

Codevilla's Trephine.—This trephine for explorative craniectomy consists of a central perpendicular rod on which turns a horizontal arm carrying the cutter, which can be slanted as desired. Both hands are required to manipulate it. Three patients trephined were dismissed cured on the tenth day, as the edge of the osteoplastic flap was cut slanting, and consequently the flap fitted firmly on the edges of the breach with no danger of sinking in or slipping.—Italian Cong. of Surgery.

Sublimate in Infective Iridochoroiditis.—Addario states that subconjunctival injections of sublimate have very little effect upon chronic infective iridochoroiditis, while they rapidly cure the acute form. Inflammatory products with a tendency to organization fail to disappear with the sublimate treatment. It may prove effective in the premonitory symptoms of sympathetic ophthalmia, due to infective choroiditis, but once established it is a long and difficult task to influence it.—*Rev. Gen. d'Oph.*, Dec. 31, 1898.

Nervous Blindness.—J. Ramos relates a number of interesting cases of sudden, absolute blindness appearing in nervous subjects after severe emotion, and gradually passing away in a few days or weeks. Another case was a healthy, serene young woman entirely free from nervous or hysteric antecedents, suddenly affected with blindness while calmly sewing in her room. His favorable prognosis was confirmed by the gradual recovery of sight in a fortnight. No disturbances could be noted in either eye, in any case.—*Gaceta Médica*, Mexico, January 1.

Sodium Chlorid for Detachment of Retina.—Lodato asserts that subconjunctival injections of sodium chlorid produce more or less remarkable improvement, amounting to a complete cure in some cases, in recent detachment of the retina. The improvement is marked even after the first injection, or possibly the second or third. If two or three injections are not effective, it is best to desist. These injections are useful in myopic or traumatic detachment, but not if there is much disturbance in the vitreous body. There is very slight, if any, pain and no inconveniences.—*Rev. Gen. d'Oph.*, Dec. 31, 1898.

Liquid Air in Medicine.—The *Medical News* remarks that the range of useful applications of this substance that can be developed, especially in hospitals, appears to be well-nigh unlimited. A quart of it placed in a ventilator will furnish pure air for a day. Fever patients can be kept in rooms cooled to zero, even in the tropics, which would make the nursing of yellow fever perfectly safe, and at the same time facilitate the recovery of the patient. It might be used with great advantage as a cauterizing agent in cancer, as its action is perfectly under control, and can be instantly stopped.

Decortication of the Lung.—Pascale has successfully treated three patients with chronic empyema rebellious to treatment, even extensive resection of the ribs, according to Delorme's method of detaching the lungs from the thickened and indurated pleura, decorticatio-pulmonis. After an incision as far to the rear as possible, the indurated pleura was detached from the lung with the knife, when it was seen that the lung, in spite of its long inactivity, retained its elasticity, and the definite cure of an empyema of many years' standing was accomplished. No inconveniences of any kind were observed during or after the operation, and he endorses warmly this method of healing empyema.—*Italian Congress of Surgery.*

Shot Wounds of the Eye.—Professor Tornatola reaffirms the benefits to be derived from a conservative treatment of wounds while hunting. The shot is always aseptic after the explosion, and the lead does not per se irritate the tissues. The danger to be apprehended is secondary infection from without, as he demonstrates by a number of convincing instances. He therefore reduces this danger to the minimum by suturing the tiny hole where the shot enters, after excision in the shape of a small, long ellipse. The wound heals in two or three days and thus shortens the danger period materially.—*Revue Gen. d'Ophth.*, Dec. 31, 1898.

Prostate Tablets in Prostatorrhea.—H. Oppenheimer writes to the *Derm. Cbl.*, January, that the administration of prostate tablets produces a rapid and permanent cure in cases of prostatorrhea from chronic prostatitis, without the gonococcus. If the gonococcus is discovered in the secretions, the treatment is contraindicated or should be discontinued. In cases complicated with posterior urethritis, local treatment should be combined with it, and if there is no improvement in a week, it is useless to persist. Out of sixty cases he considered organ therapy only indicated in seventeen; the success was immediate and unmistakable in the eight cases of noncomplicated prostatorrhea, the secretions drying up in two to fourteen days.

Intestinal Invagination.—An experience of six cases, all manifested with sudden pain, fluid discharges, meteorism in a few, some degree of collapse, induces von Eiselsberg to formulate the following suggestions for treatment. In each case the invagination was at the iliocecal valve. Tumors were felt more or less distinctly in each case; after preparation, but no irrigation, laparotomy and attempts to reduce the invagination; if successful, anchor the intestine to the wound; resection if possible; if not, and if there is too much rectal prolapsus, resection of the invaginatum, with partial or total resection of the intestine if this is impossible. Entero-anastomosis is the last resort, and is to be preferred to an artificial anus. In the two latter cases the patient must be strengthened before operating.—*Mitth. a. d. Grenzgebieten der Med. u. Chir.*, iii, 5.

Tropacocain for the Eye.—Rogmann concludes a review of the various local anesthetics used in ophthalmology, by expressing his preference for tropacocain (Giesel and Liebermann, 1891). The anesthesia is more complete than with others, more rapid in its appearance and more permanent than with cocain. It affects even inflamed tissues. Mydriasis is rare and slight. It has antiseptic properties, and the solution keeps a long while and is much less toxic than cocain. He uses a 3 per cent. solution with marine salt, 6 per 1000, which deprives it of all irritating properties. The anesthesia is so prompt that for the extraction of a foreign body the cornea can be scratched almost immediately after the instillation of a single drop. Two drops in the conjunctiva opposite each muscle are sufficient for a strabismus operation. In some cases the consecutive painful reaction seems more pronounced than after other anesthesia.—*Belg. Med.*, 1897, 40.

Surgical Treatment of Hay-Fever.—Barnhill's suggestion of excision of the hyperesthetic patches of mucous membrane in the nose which become irritated by floating pollen, emanations from

certain animals or intense light, and cause the syndrome known as hay-fever, is attracting much attention at home and abroad. He states that medical treatment is absolutely useless, his opinion being confirmed by inquiry among the professors of colleges throughout the country. Change of climate does not cure it, nor treatment of the uric diathesis, although treatment of the ocular affections occasionally accompanying it frequently helps the asthma. The hyperesthesia in the membranes is caused sometimes by a polyp, but more frequently by the rubbing together of two hypertrophied patches, usually due to hypertrophy of the middle and inferior turbinate bones. If the lesion has proceeded as far as necrosis, the affection is incurable.—*Medicine*, August, 1898.

Cerebrospinal Meningitis and Tetanus.—The *Presse Méd.* of December 24 contains a study of several recent cases in which the diagnosis of these two affections was confused and a meningitis treated for tetanus, and vice versa. Pronounced trismus seems to be the only infallible indication of tetanus, although Maragliano has noted trismus in meningitis and its absence in some cases of tetanus. Muscular contractions may be absent during the first stages of true tetanus, while they may be a marked feature of meningitis. The temperature is usually progressively higher in tetanus (Wünderlich observed one case in which it attained 45.4 degrees C.). Owing to the difficulty of raising the patient to a seated posture in some cases, it may be impossible to apply Kernig's sign. Examination of the cephalorhachidian fluid is perhaps the surest test. Although three have recovered out of the seven treated with intracerebral injections of antitetanus serum, yet it is best to wait for certainty in regard to the tetanus and the severity of the case, before making the injection.

Treatment of Uremia.—According to Lemoine, when a person affected with Bright's disease begins to have persistent cephalea, disturbed eyesight, decreased diuresis and other symptoms indicating the approach of an acute uremic attack, he should be treated in such a way as to secure rapid and abundant diuresis, avoiding all diuretics that affect the renal cells. One or two liters of milk a day should be taken and the functions of the skin stimulated by gentle frictions or tepid lotions rubbed in, followed by light massage. The diuresis is attained by stimulating the heart, using digitalin if the heart is beating softly, intermittently, irregularly, a quarter to three-quarters of a milligram in twenty-four hours, for several months. If there is parenchymatous degeneration of the heart, strophanthin is given instead, in the same doses and in the same way. Two or three baths a week are also ordered, not over ten to fifteen minutes, adding, rather for the psychic effect, a certain amount of borax or bicarbonate of lithin. Pilocarpin can also be cautiously administered to assist in stimulating the functions of the skin; one centigram pilocarpin in a hundred grams mucilaginous potion; three to six tablespoons a day. This small dose is sufficient for the purpose.—*Presse Méd.*, Jan. 11.

Success of Cinnamic Acid in Tuberculosis.—A. Landerer has been making a study of cinnamic acid in the treatment of tuberculosis during the last eight and a half years, and while he does not consider it a specific, yet he finds that it cures all cases in the early stages and many others. It causes an intense hyperleucocytosis, characterized by the presence of polynuclear and eosinophile cells, while not affecting the red corpuscles in any way. This effect of cinnamic acid is only evident in tuberculosis, as he never succeeded in producing it in healthy persons nor in persons with other than the tuberculous infection. In 119 cases of pulmonary tuberculosis, the apyretic cases were cured rapidly and completely; a number of the cases with cavities were also cured, and even advanced cases were very much improved locally and in the general health. Fever caused by the tuberculous toxins was almost invariably arrested, but not hectic fever, and cases of galloping phthisis were not affected by the treatment. Intestinal tuberculosis in the early stages was invariably cured, 17 cases; also recent non-suppurated bacillary adenopathy, and all cases of surgical tuberculosis, 70 cases, in which there was no communication with the exterior, and mixed infection. He finds sodium cinnamate or cinnamylate most effective, dissolving it in physiologic salt solution and injecting it into a vein, repeating every forty-eight hours. He commences with very small amounts, half a milligram of the sodium cinnamate, or hetol as he calls it, increasing by a milligram each time, to a maximum of 25 milligrams. He continues this treatment for four to six months, suspends for a month or so, and recommences with the small doses. He has published his researches in a handsomely illustrated book of over three hundred pages.—*Presse Méd.*, January 7.

Curable Paraplegias.—Plicqué reviews the wonders accomplished in syphilitic paraplegia by specific treatment, and in the paraplegia following grippe by cutaneous friction, massage, systematic exercises of the paralyzed members by attendant, sulphur baths, sodium, sulphur or saline water cures, and the continuous current, 5 to 6 milliampères, with the positive pole on the lumbar region, passing the negative pole around over the lower members. Gonorrheal paraplegia is amenable to a certain extent to the same measures, but treatment of the bladder or stricture that favors retention of urine will often have the best effect. Stagnation of the urine will aggravate any paraplegia, and great attention should be paid to this point, and also to prevent sacral eschars in typhoid fevers, which may induce paraplegia by a meningomyelitis. Paraplegia due to alcohol is frequent, and frequently misunderstood, especially in female cases. The patient takes more alcohol to relieve the paraplegia, but its suppression and the measures indicated above will produce rapid results. Paraplegia from intoxication with arsenic, carbon sulphid or carbon dioxid are rare, but should be borne in mind. In hysteric paraplegia care must be taken not to allow the weight of the bedding to press the feet into a deformed position, which may outlast the paraplegia. Isolation in a sanatorium, faradization with a brush, static sparks, succeed better in this form; relapses occur after hypnotic treatment. Paretic troubles frequently characterize a certain form of neurasthenia, and this requires energetic treatment, with general hygiene, isolation, electrotherapy and hydrotherapy.—*Presse Méd.*, January 7.

To Abort a Cold.—Max Nassauer asserts that an incipient cold in the head can be checked every time if the nose is thoroughly rinsed out with a weak solution of potassium permanganate, which seems to have a specific action upon the germs causing the trouble. He claims that the public will have a higher respect for the profession when it is proved that colds can be successfully aborted by following the physician's directions. He checks colds in the first hour or so, and thus escapes all the catarrhal and bronchial annoyance that follows in their train. He has a strong solution of potassium permanganate on hand: about what can be taken up on the tip of a small knife, to half a liter water. A few drops of this strong solution are added to warm water until it is colored a pale pink. After blowing the nose vigorously, both nostrils are rinsed out well with this weak solution, allowing the fluid to run out through the other nostril and through the mouth. Each nostril is then wiped out with cotton on the finger to mechanically remove all remaining germs. A small dry plug of cotton is then pushed well up into each nostril and the nostrils filled with the weak solution, with the head held back, allowing the cotton to soak it up. The cotton is left undisturbed for about an hour, for the warmth and moisture to produce their effects, when the plugs are expelled by blowing the nose. Even an established cold is favorably influenced by this treatment, but it is most effective when the sneezing, tickling and increased secretions announce the advent of the cold, which he considers a highly contagious infection.—*Klin. Therap. Woch.*, January 1.

Microbiologic Test for Arsenic.—Di Mattei calls attention to the odor of garlic that accompanies the growth of mould fungi on substances containing arsenic.—*L'Ufficiale San.*, 12.

Morphin and Ether when Death is Imminent.—Ferrand states that a fiftieth solution of morphin and ether, half and half, will be found a very much more effective injection than the former alone, while all danger of syncope or asphyxia is avoided by the addition of the ether.—*Semaine Méd.*, January 25.

Ichthyol for Fissura Ani.—L. Conitzer confirms the rapidly healing properties of ichthyol in fissura ani, and describes eight cases cured in a few days by painting the anus with undiluted ichthyol, morning and evening, and after defecation, rubbing it in well.—*Munich Med. Woch.*, January.

Opium and Phosphorus Intoxication.—Schreiber recommends copious lavages of the stomach in acute opium or phosphorus intoxication, with a .2 per cent. aqueous solution of potassium or sodium permanganate, leaving half a liter in the organ, and even trying hypodermic injections in urgent cases.—*Gaz. degli Osp.*, Oct. 30, 1898.

Stomatitis Ulcerosa.—Rissel claims that a more rapid cure is obtained than with the kali chloricum treatment, by rinsing the mouth with boric acid and rubbing iodoform into the ulcers, scraping them with a sharp spoon if the improvement is not promptly evident, then continuing the boric acid and iodoform.—*Munich Med. Woch.*, January 17.

Alcohol for Dressing the Umbilic Wound.—Budberg recommends alcohol for this purpose, as he has found it extremely satisfactory in two hundred cases, rapidly drying up the cord without inflammation or discomfort. He prefers absolute alcohol for fatty cords, diluted for others. After the first bath he advises not to bathe the infant again until the cord has dropped off.—*Presse Méd.*, January 11.

The New Anesthetics.—Our foreign exchanges contain very favorable reports of the reception of the new anesthetics, orthoform, "orthoform neu" and nirvanin. The dentists are especially enthusiastic. One mentions that he extracted twenty-two teeth with nirvanin at one sitting (vide JOURNAL, p. 311). Bardet combines ethyl chlorid with 2 to 4 per cent. cocain or eucain and applies it as a spray or tampon, thus avoiding the prick of the syringe. It is especially effective for application on the mucous membranes, gums, anus, etc. The tests with it are described in the *Presse Méd.* of January 24.

Resection of the Vas Deferens for Epididymitis.—It has been noticed that resection of the vas deferens for prostatism was always accompanied by the cure of epididymitis, and A. Redi of Florence now announces that recurring epididymitis calls for resection of the vas deferens as the rational and only effective treatment. He does not leave the stumps of the vas loose on the affected side, but sutures them to the corners of the wound to prevent ascending infection.—*Gaz. degli Osp.*, January 22.

The Glue Salves.—Pelagatti asserts that the addition of lanolin to the glue salves so much used recently in cutaneous affections makes them keep without hardening more, and enables other medicinal substances to be easily incorporated with them. His formula is: Zinc oxid glue 30 gm.; glycerin 20 gm.; water 50 gm.; pure lanolin 48 gm.; zinc oxid 20 gm. It is softened in a water bath, spread on the affected part with a brush and dusted with lycopodium. It hardens in five minutes and clings close to the skin. It can be detached in about three days.—*Semaine Méd.*, January 25.

Palliative Occlusion of Cancer of the Cervix.—S. Gottschalk treats ulcerating and inoperable cancers of the cervix by curetting the surface of the neoplasm, and cauterizing intensely without injuring the surrounding tissues. A circular incision is then made with the thermocautery in the vaginal mucosa, 2 to 3 cm. below the tumor. The flap is detached all around except on the side toward the tumor. It is then turned over on the tumor, the external or epithelial side down, and tamponed with iodoformed gauze for a week. The patient can get up in twelve days, and she is ensured several months' peace without hemorrhages before the ulceration perforates the comparatively healthy flap-cover.—*Semaine Méd.*, January 25.

Potassium Permanganate in Lupus.—Kaczanowsky of St. Petersburg has been very successful with the following method, which he highly recommends: After softening and removing the scabs, pulverized potassium permanganate is spread 2 to 5 mm. thick over the patches and covered with cotton. Eyes and nose should be protected with cotton if the patch is near them. When soaked with secretions remove, and after cleansing with a solution of boric or phenic acid or of potassium permanganate, if there is a putrid odor dust with iodoform. Repeat twice a day at first, and later every second or third day. If cicatrization is slow, the granulations may be touched with nitrate of silver. One application of the permanganate is usually sufficient.—*Presse Méd.*, January 18.

Local Treatment of Diphtheria.—A Swedish physician, N. Englund, whose practice is remote from a large town, and who finds it impossible always to obtain diphtheria serum when needed, has been so successful with local treatment that he has only lost three patients out of 197, a mortality of 1.52 per cent. His method is the simultaneous use of trichlorid of iodin, which Behring and Kossel recommend for rinsing the mouth in diphtheria, sodium sozoiodolate, sulphur and ferric chlorid. The formula for the gargle is: trichlorid of iodin 5 gm., aq. dest. 500 gm., saccharin .50 gm.; for internal use. Dilute with ten parts water and gargle ten times a day. Insufflate into nose and throat, after each gargle a powder composed of sodium sozoiodolate 5 gm., sulphur 15 gm.; for internal use. Administer in addition fifteen to forty drops ethereal tincture of ferric chlorid four times a day.—*Semaine Méd.*, January 18.

Thymol in Whooping-Cough.—Fischer has treated five of his own children with thymol extract prepared by Taschner in Berlin, and called by him "pertussin." The mixture is sold in bottles, and has a brownish color, aromatic smell, and is of a syrupy consistence. Taschner's formula is: thymol, one part; syrup seven parts. Children take it well in doses from a half to one tablespoonful three times a day. The effect of the medicine was quite remarkable in these cases; the distressing cough was soon relieved and the attacks of cynanosis speedily diminished. Several of the well-known remedies had previously been tried, with no success. The author tried giving the extract in other conditions, such as chronic catarrh of the larynx and bronchi; these cases were greatly relieved by pertussin; it diminished the tendency to spasmodic cough, and at the same time loosened the phlegm. Cases of emphysema, in which there was a sense of oppression on the chest, were greatly benefited, and in a few days the patients were able to walk upstairs with little discomfort.—*British Med. Jour.*

Tetanus Serum.—The fact has been established at Professor Pawlik's obstetric clinic, Prague, that tetanus serum has no therapeutic effect, but acts by conferring immunity. A long article in the *Klin.-Therap. Woch.* of January 8, containing the account of the experimental and clinical research that has led to this conclusion, closes as follows: "So much has certainly been established, that injection of serum simultaneous with the tetanus infection confers immunity upon the individual. We therefore consider a subcutaneous injection of serum in the period of incubation or in the early stages of symptoms, not as serotherapy but as sero-immunization. Intracerebral injections of serum have no therapeutic effect in the strict sense of the term. They act rather as a late immunization, like

Pasteur's treatment of hydrophobia. As this immunizing action of tetanus serum is fully established, we have been forced to the conclusion that in order to prevent the appearance of tetanus in cases operated in our clinic, we must inject the serum as a preventive measure at the time of the operation or immediately afterward, although we may be confident that the operation has been performed with every antiseptic precaution. We have been impelled to this course by the number of cases of tetanus that have occurred in our service, even in the absence of puerperal infection. Consequently now, after disinfection, we keep our operated patients immunized against tetanus by subcutaneous injection of tetanus infection, thus completely satisfying our professional and personal conscience."

Inguinal Hernia Operation Without Buried Sutures.—Jonnesco was among the first to insist upon the importance of dispensing with permanent buried sutures (vide JOURNAL, xxx, pp. 626, 672,). His perfected method, illustrated in the *Cbl. f. Chir.* of January 21, obliterates the inguinal canal completely without permanent sutures, merely two rows of three U-stitches with medium-sized silver wire, after mobilizing the different layers of tissues, avoiding injuring any important blood-vessel with the needle. An Emmet needle is inserted in the under side of the wound 3 to 4 cm. from the edge, passing under the Fallopian ligament, through under the lip of the obliq. intern. muscles and transvers., taken together, passing above the peritoneum and the transverse fascia and through the upper lip of the obliq. min. muscles and transvers., 1 cm. below their free edge. The wire is then inserted in the needle and drawn through to the under side of the wound and the other half of the stitch made in the same way. The second U-stitch passes besides, through the two lips of the hernial sac. A space of 2 cm. is left between the stitches. The superficial row of stitches is a centimeter above the first. They pass through the same tissues and beyond to the skin, except the lower stitch, which only passes through the skin and both ligaments of the superficial ring. As the first row of sutures is drawn tight, the upper muscle lip is pulled over until it covers the under lip completely, obliterating the inguinal canal, while leaving space for the emergence of the cord below. The ends of the wires are tied over rolls of gauze slightly wider in diameter than the U, and rolls are also placed under the loops of the superficial row of stitches. Each U should include a space of 1 to 1.5 cm. He sutures the skin with four simple stitches, removed in eight to ten days, the deep row in fourteen to fifteen.

Technic of Intrauterine Injections.—From an exhaustive article on this subject in the *Presse Med.* of January 11, we note the following points: The physician must never entrust an intrauterine injection to another, but attend to it himself, the patient in the obstetric position on the edge of the bed. A double glass sound curved forward to fit the anteflexion of the uterus is most effective, and all antiseptics should be rejected except iodin and potassium permanganate. Formula for the iodin: Metallic iodin 3 gm., potassium iodid, 6 gm., boiled water 1 liter. This is for serious infection. In lighter cases, potassium permanganate at 1 to 2000 or 1 to 4000 is to be preferred. For merely prophylactic injections, a weak solution of sublimate, 1 to 4000 or 1 to 8000, is recommended, followed by an injection of boiled water. The assistant should hold the receptacle not higher than thirty to forty centimeters above the level of the bed. It is wiser to make an abundant injection, thus at one time evacuating all the clots and débris, than to repeat the injection. Professor Budin observes: "If it proves a difficult matter to insert the sound past the cervix, the probabilities are that the injection is useless." The dangers are: hemorrhage, which is usually insignificant, and perforation, which is serious, and must be avoided with the utmost prudence, bearing in mind the anteflexion of the uterus. Chills and fever frequently follow intrauterine injections, and the family must be warned of the possibility of their appearance. If a spasmodic and painful contraction of the uterus occurs, suspend the injection. The nervous accidents are frequently serious: syncope, convulsions, dyspnea, cyanosis, and rapid or sudden death. Tarnier ascribes these accidents to the absorption of the toxic fluid injected. There may be tardy intoxication from retained sublimate.

Spasmodic Coryza and Partial Turbinotomy.—A comprehensive study of recurring or spasmodic coryza and the various methods of treatment, in the *Revue. Hebd. de Laryng.*, Dec. 31, 1898, concludes by proclaiming the value of partial turbinotomy as the only effective method of treatment of spasmodic coryza with degenerated nasal mucosa. The effects are rapid, much more than with galvanocauterization; if there are relapses, renewed intervention is much less frequently required. The inflammatory reaction is much less than with any other process, and there are none of the accidents liable to follow galvanocauterization: prolonged suppuration, cicatricial synechia, etc. After painting the nasal mucosa with a 10 per cent. solution of cocain, scraps of the mucosa over the inferior turbinate bone are cut away with Mattin or Laurens forceps, and the mucosa leveled smooth over the bone. If the bone is hypertrophied and hangs down into the rhinopharynx, this portion is removed with the cold loop on a Knight polypotome. The inferior turbinate bone is thus decorticated, and this may prove sufficient. If not, slices of the bone may be removed, reducing the size of the bone as desired, to give ample space for respiration. A few slight galvanocauterizations of the bleeding vessels will arrest the hemorrhage. The patient is dismissed without dressing the wound, with his nasal fossa open. Seventeen observations are given in detail. Care must be taken not to remove the entire bone, as this might seriously interfere with respiration. Special points are: plenty of light on the field of operation and careful attention not to seize more of the mucosa or of the bone than it is judicious to extirpate.

Treatment of Abortion.—A careful review of the opinions of prominent gynecologists on the subject and an experience of 500 personal cases, induces E. Chenevière of Geneva to formulate the following principles: In case of an inevitable abortion the case must be supervised to prevent its becoming an incomplete abortion; if it is already an incomplete abortion it must not be allowed to become septic by the retention and decomposition of débris. If it is already septic the débris must be removed without delay, as they constitute a permanent source of infection for the organism. Even if the abortion seems complete, the development of future accidents must be prevented by removing the last traces of the decidua. Applying these principles in practice, the treatment should consist in evacuating the uterus as promptly and as effectively as possible, and this is best accomplished with the curette. He prefers a curette as large as possible. One six to ten millimeters in diameter will enter the cervix without difficulty in an abortion of a few weeks, and later, a curette thirteen to fifteen millimeters wide will be found most useful. He prefers the instrument a little dulled by use and antiseptics. In 390 of his cases he had no accidents except a bloody discharge for a few days in 4, and fever and chills in 2, apparently healthy women, which he attributed to latent inflammation from severe puerperal accidents in preceding childbirths, a view afterward confirmed. His remaining 104 cases were all affected with serious puerperal accidents before intervention. Eight died, but a large number of others who seemed in a desperate condition, were undoubtedly saved by it. He mentions that the fever that occasionally follows removal of putrid débris is insignificant and transient. —*Semaine Méd.*, January 4.

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SATURDAY, FEBRUARY 18, 1899.

THE TRANSMISSIBILITY OF TUBERCULOSIS THROUGH MILK.

There can be no doubt that the most common medium for the transmission of tuberculosis is the atmosphere, and it is probably for this reason that the pulmonary localization is the most common. On the other hand, it must be conceded that the gastro-intestinal tract is the portal of entry in a not inconsiderable number of cases. It is generally believed that in children the bowel suffers most commonly from tuberculosis, and the explanation is found in the large use by them, as food, of a ready medium for conveying tubercle bacilli, namely, milk. It is known that the milk of tuberculous animals may contain the bacilli, even in the absence of a lesion of the udder or teats. The recognition of the disease in such animals is, therefore, of the highest importance, and when discovered the milk should not be used for food. The negative results of a single examination of the milk are not sufficient, as even when the disease is known to exist the bacilli may not be constantly present. The investigation must therefore be supplemented by the tuberculin test or by animal inoculation. While there is, perhaps, less danger from tuberculous meat, partly because the lesions may be detectable, but principally because the tubercle bacilli are likely to be destroyed in the process of cooking, this source of infection must not be ignored.

A good deal of work has already been done to show the danger and the importance of milk as a medium for the conveyance of tuberculosis, not less than of scarlet fever, diphtheria, typhoid fever, cholera and other infectious diseases. In further proof of the danger of spreading tuberculosis through milk, KANTHACK and SLADEN (*Lancet*, Jan. 14, 1899, p. 75) report the results of a study of the effect upon the spread of tuberculosis produced by the various milk-supplies to the different colleges of Cambridge, Eng. In the experimental observations six guinea-pigs were used daily, two being inoculated on two successive days with each sample of milk. It was found that of ninety animals inoculated twenty-three died from tuberculosis—25.55 per cent. Of these twenty-three thirteen were inoculated with the creamy layer and ten with the sediment. Of sixteen dairies examined the milk of nine caused tuberculosis. These figures are little less than startling, and, while it is probable that not all who ingest tuberculous milk are infected, the risk is one not to be invited or considered lightly. The remedy nearest at hand is thorough sterilization of the milk, but apart from the fact that every one can not or will not use such milk, the correct solution of the difficulty consists in suppressing the sale and use of the milk from tuberculous animals, or, even better, preventing the sale or use of any milk that is not certified as being derived from cows known to be free from tuberculosis. Of the necessity of some such precaution further evidence is afforded by the detection by a number of trustworthy observers of tubercle bacilli in butter.

SLOW DEMONSTRATION OF PARASITIC ETIOLOGY.

The validity of the doctrine of pathogenic bacteria has been much criticised because of the seeming slowness with which pathogenic bacteria have been demarcated. This slowness is lightning-like compared with that with which the etiologic relations of other parasites have been demonstrated. The pathogenic nature even of such gross parasites as the *Acarus scabiei* took a century and three-quarters to establish. The itch insect was discovered by MOFFAT (*Theatrum insectorum*) in 1663. As late as the time of HAHNEMANN its pathogenic relation to scabies, while gaining ground in popular medical belief, was still in dispute. About a century and a half after MOFFAT'S discovery, HAHNEMANN, advancing his inventively stupid doctrine of psoric diathesis, denounced with unusual emphasis those who believed in the parasitic origin of scabies. As late as the thirties of the present century, an animated controversy still was waged in the ranks of scientific medicine over the parasitic nature of scabies. Of the picturesque settlement of this controversy the *Lancet* (January, 1835) gives the following vivid picture:

"The antiquity," it states, "of the disease vulgarly known as the itch will not be contested, and nearly of as ancient a date has been the popular opinion that it is accompanied by an insect to which the appellation *Acarus scabiei* has been given. This popular supposition has always existed, not so that of the learned,

for, although at periods it has by some authors been zealously adopted, it has at others been as obstinately repudiated. The existence of the acarus, however, as an attendant on the itch is now placed beyond doubt by late experiments at the Hôpital St. Louis in Paris.

"*Gale*—the French word used to express itch—is by some derived from the Latin *callus*, but according to more judicious etymology, it takes its origin from the Latin *Galla*, "a nutgall"—a supposition which, if correct, would show the antiquity of the belief that an insect is present in the itch, just as the nutgall is produced by the *Cynips quercusfolii* on the leaves of *Quercus infectoria*. The Arabian physicians, particularly AVENZOAR, firmly believed in the presence of an insect in the itch pustule. It was distinctly described by MOFFAT in 1663. Among the Italians, REDI and BONONIO have noticed this insect, the latter having given a particular description of its physical character and its habits. After these writers, LINNÆUS confounded it with the cheese mite. It was subsequently made an object of special research by DEGEER, who described it so well and gave so accurate a drawing of the insect that it was dubbed the 'acarus of DeGeer.' LATREILLE placed it among the genus *Sarcopte*.

"In 1812 the subject again became a matter of dispute, and a series of experiments were instituted in Paris, the result of which was that the acarus was found and exhibited to the eyes of both the credulous and the incredulous, and its existence was once more considered an article of medical faith. However, at a subsequent period, LUGOL, who in his lectures on diseases of the skin, had for six years taught the existence of the acarus, on being appointed to the Hôptal St. Louis, considered it unworthy of a hospital professor to ask his students to believe in the absence of ocular demonstration which was within reach. Accordingly, pins and needles and various probing instruments, together with microscopes, were again in requisition and employed most assiduously by M. LUGOL and his class.

"Strange to say, the acarus, formerly so complacent, evaded every research. Microscopes of greater power were provided, but after several days of scrupulous examination nothing was found. LUGOL, from being a firm believer in the existence of the acarus, became from this time a decided skeptic. So fully was he convinced of the impossibility of finding this insect that, in conversation with ALIBERT, who rather leaned to the opposite doctrine, LUGOL declared he would give a prize of three hundred francs to the first student who should extract the acarus in his presence. This challenge was thrown out in 1828, but not until 1834 was it met, not, however, that the interval was allowed to pass without repeated attempts to discover the insect. Several students sought for it in vain. GALES, the head apothecary at St. Louis, in 1812 showed what he described as the acarus and wrote a thesis thereon, accompanied by a drawing, but the insect figured by him was recognized to be nothing more than the cheese mite. Whether he found the real insect or not is a matter of doubt, but no doubt can exist as to the incorrectness of the drawing he has given.

"Three days were devoted to a further investigation at the Hotel Dieu, but the three sessions were unavailing. Some time after MESMER, a naval surgeon, came to the Hôpital St. Louis and boasted of having found the acarus, but what he exhibited was nothing but a flour mite. Believers in the acarus now lost ground and said little about it, referring to it in their lectures, only very cautiously, if at all. Even the courageous ALIBERT preferred laying before his class the host of great names in favor of the acarus to declaring to his pupils his personal convictions on the subject.

"Thus matters stood when, about the beginning of April, 1834, a girl presented herself at the consultation room of the Hôpital St. Louis to be treated for what she called the itch. Some doubt arising as to the exact nature of the eruption, RENUCCI, an Italian student, offered to remove all difficulty as to the diagnosis by ascertaining the presence or absence of the acarus, which, he said, was so commonly found in cases of itch in his country that the peasants extracted them from each other with pins and needles. No objection being made to the experiment, RENUCCI examined the girl's hand and in an instant extracted a small, roundish semitransparent body of about two-thirds the size of an ordinary cheese mite. This was exhibited in the presence of a number of students of the hospital. On being placed on black paper, or on the nail, the whitish speck displayed powers of locomotion, scampering about with activity, unaware of the noise it might make in the annals of science. On the arrival of ALIBERT—as it was that professor's morning for receiving patients—the facts were detailed by GERDY, the interne. ALIBERT ordered a report of the circumstances to be drawn up and signed by the students present (thirty in number), reminding them, at the same time, of the three hundred francs offered by LUGOL.

"A short account of the discovery in one of the medical journals elicited a reply from LUGOL, questioning the reality of the occurrence and treating it as a fresh mystification. But RENUCCI was not to be deterred from pressing his claim to the merit of the discovery. Backed by ALIBERT, he inserted a rejoinder, offering to extract the acarus alive before LUGOL himself or the whole faculty.

"The affair now began to cause some excitement. Nothing was talked of or looked for in the hospital but the acarus. The wards allotted to itch patients, heretofore so quiet, were now thronged with students and visitors, anxious to discover or view the long dis-

puted insect. The day appointed for convincing Lugol arrived, and with it a number of scientists.

"Several acari were extracted, placed under the microscope and seen as plainly as an insect of that magnitude could be. LUGOL'S doubts vanished before the mass of living evidence, who congratulated RENUCCI upon his success and upon the benefits he had thus conferred upon science. At the same time LUGOL assured him that the prize of three hundred francs should be forthcoming as soon as he wished to claim it. Upon this occasion ALIBERT declared that the reward should not be limited to three hundred francs, but that he would add a gold medal bearing the name of the discoverer and the date of the event. Praise is due to ALIBERT for his efforts on this occasion and for his encouragement of RENUCCI, whose exertions would otherwise most probably not have been successfully made. But few insects were found during the first experiments, but stimulated to perseverance by the persuasion of ALIBERT, the searchers for the acari produced them at last en masse during the repeated sessions, and thus finally forced conviction on skeptics."

Since 1835 the pathogenic relations of the *Acarus scabiei* to the itch has been accepted without question by scientists, albeit the psoric doctrine still survives by its advertising qualities among the homeopathists. This doctrine was the subject of the following naive discussion at the International Homeopathic Congress of 1890, when a paper was read on the psoric doctrine and the efficacy of psorinum or pus from the itch corpuscle. The British homeopathist, HUGHES, denied the existence, reliability or utility (*Medical Current*, 1890) of psorinum — "it was a nasty preparation." Dr. HENRY of Alabama claimed that the psoric doctrine was the foundation stone of homeopathy. Dr. MILLIE J. CHAPMAN, the reader of the paper, did not know whether there was any such thing as psorinum or not. She had purchased a bottle of what was so designated in the price current of Dr. Swan of Boston, and from it had gotten good results.

If a century and three-quarters were required to place the parasitic etiology of scabies on a firm basis, certainly the demarkation of pathogenic bacteria, judging from this rate of progress, must be admitted to have proceeded with astonishing rapidity.

HAVE WE AN INDEX TO INTESTINAL PUTREFACTION?

A few years ago, when the subject of intestinal antisepsis was more prominently before the medical profession, on account of the supposed value of antiseptic remedies in the treatment of such diseases as typhoid fever, it was earnestly hoped that we might obtain an index of the amount of intestinal putrefaction going on by the estimation of certain excretory products thrown off in the urine. When we come to consider the value this index would be to us and the rapidity with which it might be obtained, the importance of the subject becomes at once apparent.

By the more delicate method of counting the number of colonies of bacteria in a given quantity of the feces, an index to putrefaction in many cases might be obtained. However, since the number of colonies in the given quantity of feces may be so variable, depending, as it does, upon such contingencies as diarrhea, constipation, the administration of drugs, etc., and since the micro-organisms are with such difficulty grown, isolated and counted, the data obtained might be controlled entirely by such modifying antecedents, and grave error would ensue. For instance, it is known that some pathogenic micro-organisms (as the Eberth bacillus) live and thrive in potable water in such numbers that typhoid fever is caused by its use. It is also known that bacterial examinations are made time and again of contaminated water without ever isolating this special micro-organism. If we ask the bacteriologist why this is so, he will say that it arises from the fact that in such a large quantity of water there must be only a very few bacteria, and that in selecting a small amount of water for examination, none of the micro-organisms looked for could be found. This would be the case also in such a medium as the feces, which must necessarily be examined early after expulsion, otherwise the multiplication of the different varieties of germs would lead to fallacious results. So few men in general practice have the necessary skill, experience and required apparatus to investigate this question of bacteriology that we are compelled to look about us for more simple ways of obtaining the desired end.

The next easiest excretion to be obtained is the urine, and in that medium investigators are continually searching for some distinct principle resulting from bacterial life which might give an index to the amount of putrefaction going on elsewhere. One of the principles which was once thought to yield this information is indican. Indican is a substance derived from indol—a product resulting from the action of bacteria on albuminous material. Indol, when absorbed, becomes oxidized into indoxyl in the tissues, and uniting with sulphuric acid in the liver, and potassium throughout the body, is excreted in the urine in the form of indoxyl, potassium sulphate or indican.

To determine the amount of indican in the urine it was found only necessary to add an equal amount of hydrochloric acid to the urine, then one drop of a concentrated hypochlorite solution, thereby converting the indican into indigo blue; the latter to be dissolved out by a small quantity of chloroform. This was found to be a procedure readily attained and one which could be done by any graduate of medicine.

This theory has, however, been rejected, on account of the fact that it has been proved to be erroneous. For instance, in many cases of typhoid

fever supported upon a milk diet containing much albuminous material, it is frequently the case that indican is entirely absent from the urine, although no special medicine has been given for its reduction.

Indican in the urine is now looked upon as being an index to wasting disease, and its increase to denote also a catarrhal condition of the intestinal canal with hyperacidity of the gastric juice. Other substances must, therefore, be isolated, which, being increased or diminished, might give us the direct information sought.

More recently, the prevailing tendency among physiologic chemists is to look upon the entire group of ethereal sulphates as being more capable of furnishing the guide to the amount of intestinal putrefaction, a large increase in the normal amount of ethereal sulphates indicating an increased amount of intestinal putrefaction, and a decreased amount of ethereal sulphates showing a decrease of intestinal putrefaction. In other words, by estimating the relative percentage of all the ethereal sulphates, such as those combined with the aromatic bases, indol, skatol, phenol and paracresol, we may obtain this necessary index for which we seek. Here again we meet with much difficulty, since the estimation of these bodies entails a long procedure, as well as requiring apparatus which demands some skill in managing, so that, like all other kinds of original research, the method will be embarrassed by its difficulty of employment. The progress of knowledge along this special pathway is necessarily so slow that we have not yet isolated diseased conditions and associated with them the relative proportion of ethereal sulphates which might be found in the urine. The way is clearing, however, and from the development of the *specialty* of internal medicine in the past few years, we have reason to hope for more brilliant results in the future along this line.

Further study of the relative amount of ethereal sulphates in the urine may prove that we have only been started in the right direction, and that years have been spent upon the first stepping-stone which leads to the alluring but yet distant goal. We may possibly find that, instead of the ethereal sulphates being our indicator, it is other bodies or principles which will yield this result, and should we lay aside the pursuit in this direction, we have at least some reason for suspecting that the amount of ptomains or leucomains may be the dominant bodies sought for but not easily found. That method, however, is yet to be devised which will rapidly yield the relative amount of these bodies in the urine or feces, and our knowledge regarding them is yet so limited that it has been the special privilege of only a very few to have ever estimated them. If not the ptomains or leucomains, it may be some toxin, toxalbumin, bacterial cellular proteid, albumose, or some less toxic product of micro-organismal life derived from saprophytic bacteria which gives rise to the production of carbonic acid, ammonia, sulphuretted hydrogen, and various coloring principles. The investigations of these latter-named bodies are yet to be made by the more diligent, and, the question of the first few named bodies being open to doubt, we may well ask ourselves: Have we an index to the amount of intestinal putrefaction?

ACUTE LEUKEMIA.

Until very recent years the tendency of medical teaching has been to assign all forms of leukemia to the realm of chronic diseases. A case of leukemia running a course of about six weeks, reported by FRAENKEL almost half a century ago, received but little attention at the time. Succeeding this case there appeared from time to time reports from other sources, describing practically identic cases both as regards symptoms, including blood count, and pathologic lesions appearing at autopsy. A little over ten years ago these cases were collected by EBSTEIN, and from this date we must look upon this rapidly fatal form, acute leukemia, as classified as a distinct disease. During the last decade so much has been added to our knowledge of all forms of leukemia, and because of this, descriptions of the disease have changed so much, that the separation of the varieties has been almost too much for one to grasp. At present the classification of CABOT seems to be the one generally accepted, and certainly may claim advantage in simplicity: 1. The splenomyelogenous, in which the spleen is enormously enlarged, marked changes in the marrow of bones are present, the lymphatic glands but little if at all affected, while the blood examination shows great leucocytosis, averaging in the neighborhood of half a million, of which the most conspicuous figure under the microscope is the abnormal leucocyte, the myelocyte, while the other varieties of leucocytes are all relatively diminished; and 2, the lymphatic, in which the spleen as a rule is not enlarged, though it may occasionally be enormous, in which there are usually visible enlargements of some lymphatic sets, and clinically a leucocytosis of about one hundred thousand, about 90 per cent. of which leucocytes are lymphocytes, large, small, or mixed. The division into acute and chronic lymphatic leukemia is a division principally according to duration, though there are some differences in the blood which will be taken up later. Acute leukemia usually terminates fatally within six weeks of the origin of the trouble, although FRAENKEL and others have endeavored to put off the time limit to four months; over six weeks the disease is regarded as chronic, and cases have been reported in which typic lymphatic leukemia has existed several years. A point of some error must necessarily exist when such an arbitrary division is made, for cases of leukemia have been known to have remained latent for a considerable period of time, to suddenly break out with pronounced acute symptoms, and a fatal

termination to ensue within a few days or weeks. Enough cases have been gathered, in whom the blood was normal at least some days previous to the onset of their symptoms, to show conclusively that an acute lymphatic leukemia of a six-weeks duration or less as a distinct disease does exist. As regards the hematologic distinction of the acute and chronic lymphatic leukemia, the difference is mainly in the predominance of the variety of leucocyte present. In the acute form the large lymphocyte, with its faintly staining nucleus, a rather infrequent figure in normal blood, is here vastly in excess of the small lymphocyte, while in the chronic variety, the reverse is the truth, the small lymphocytes taking the stain deeply, and forming fully 90 per cent. of the whole count. When an acute case becomes chronic, this change in the blood, from the predominance of the large leucocytes to a similar excess as regards the small, is as a rule readily observed. Another point of some value is that the more acute the process the greater the anemia, as regards the count of red corpuscles. Conversely, as the type verges to the chronic the red corpuscles increase in number, and a red count as high as three million is not unusual. One other point, of perhaps minor importance, is that in the acute disease the blood usually contains a similar number of enucleated red corpuscles, while in the chronic form these are but infrequently seen.

Since the publication of EBSTEIN's article, several lists of cases of acute lymphatic leukemia have been published. Lately (*Phila. Med. Jour.*, January 7), FUSSELL JOPSON, and TAYLOR have collected the more recent cases from the literature, to which have been added the authentic cases from the previous lists, together with two undoubted instances which have come under their personal observation—in all fifty-six cases in man and one in a calf. Their own cases have been worked up with great care, both clinically and at the autopsy. Of especial interest is the first case presented, a woman in whom, with a history of continued fever for several weeks, abdominal symptoms, and epistaxis, one would not be unjustified in making a diagnosis of typhoid fever. The profound anemia present led to a blood examination, by which means the diagnosis of acute lymphatic leukemia was unmistakably made. The blood here showed 1,273,000 red, and 362,000 white corpuscles; in the differential count the lymphocytes numbered about 80 per cent., while the nucleated corpuscles numbered over two thousand per cubic millimeter, so that this case resembled, but not very closely, the type of the disease as set down above. An interesting feature brought out in the autopsy, though not uncommon, was that "along the line of the ileum, Peyer's patches were much enlarged, with hard, raised, everted edges, and their centers ulcerated." The second case reported, also in a woman, follows the acute type more closely, though apparently the course, from the symptoms described, covered a somewhat longer period of time than in the former case. Hemorrhages and fever were also prominent in this patient, but aside from this the resemblance to typhoid ceases. The red count was 800,000, the white corpuscles numbered 134,000, almost 90 per cent. of which belonged to the lymphocyte variety, large, small, and mixed. The nucleated red cells were very numerous, there being almost 5000 to the cubic millimeter. In both these patients glandular enlargement was present, but was not universal, different sets of glands being involved in each instance. The liver and spleen were slightly enlarged in both patients. In the first case the marrow was apparently "normal in color and consistence," while in the second patient slight fatty change was the only alteration in evidence. On microscopic examination in both cases, diffuse almost universal lymphatic infiltration was found, as was also noted in a similar case seen by the writer. Minute hemorrhages in various parts of the body were common, as is usual in the various diseases distinguished by marked anemia. While the second case undoubtedly follows more closely the classic picture of the disease, the greatest interest must center in the first case. Not only were many of the clinical features of typhoid fever presented, but at the postmortem the presence of ulcerations in the intestines involving Peyer's patches would have easily led superficial observers to have regarded the disease as one of enteric infection. Besides, with a clinical history pointing to a certain disease, attention is naturally first and principally directed postmortem to the organs where the specific manifestations of the disease, if any, would be found. Continuing the autopsy, an enlarged spleen and liver, together with various other glandular enlargements and hemorrhages into the different organs, would but lend strength to the diagnosis of typhoid. An enlargement of the solitary follicles and Peyer's patches without ulceration might easily lead to a supposition of typhoid, for death not infrequently supervenes in this disease before any ulceration of the lymphatic structures is discernible. This one case, then, resembling as it does another totally different disease, from which it can only be positively differentiated by a thorough examination of the blood, opens a large field for speculation and makes another strong plea for the routine examination of the blood whenever possible. It may be remembered, too, that aside from the blood examination there was every reason to believe that this case was typhoid. While a thorough autopsy would disprove this, yet it is the exception that outside of institutions a postmortem examination is or can be obtained.

In the summing up of their table of cases several statistic points have been brought out with great prominence. In the 56 cases, hemorrhages either in the form of petechiæ, or from the mouth, nose, or other mucous surfaces occurred 39 times. Lymphatic enlargement was present in 47 cases, and enlargement

of the spleen in 40. As regards temperature, a more or less marked rise was noted in 31 instances; in some it was silent, in others resembling, as in the case here dwelt upon at length, typhoid fever, while occasionally pyrexia of the septic type has been recorded. One other point of rather curious interest has been the formation on the tonsils of a membrane, resembling in appearance that of diphtheria but not yielding the Klebs-Loeffler bacillus in the culture-media, occurring with sufficient frequency however to make the hypothesis of coincidence untenable.

One word as to diagnosis, and it can best be given in the words of the writers of the article quoted: "The occurrence of a rapidly increasing anemia, with its accompanying symptoms, petechiæ over the body, or hemorrhages from the mucous membrane, with enlargement of the lymph-glands, fever and a moderately enlarged spleen and liver, accompanied by a decrease in the blood of the red cells and an increase of the white cells of mononuclear form, makes diagnosis conclusive."

In conclusion, it may be stated that leukemia is no longer the rare disease it was once thought to be. As in the other blood diseases proper, cases are being reported with increasing frequency, because facilities for making hematologic examinations are being more and more widely distributed among physicians. Not only this, but we are all frequently brought forcibly to recognize how important a thorough examination of the blood sometimes is. With the publication of reports similar to those here cited, it will not be long until acute lymphatic leukemia rests upon a much firmer foundation than is at present afforded it.

JAMES HENRY ETHERIDGE, A.M., M.D.

A few weeks ago the pages of the JOURNAL chronicled the death of the then editor, Dr. JOHN B. HAMILTON, and now his college-mate, his faculty colleague, his long-time friend, joins him in the long rest. JAMES H. ETHERIDGE died late Thursday evening, February 9, at his residence, 1634 Michigan Ave., Chicago. The cause of death was fibrous myocarditis, the result of coronary sclerosis. Slight attacks of angina had for a few weeks given some warning of danger. Death was sudden at the last.

JAMES HENRY ETHERIDGE was born at St. Johnsville, Montgomery Co., N. Y., March 20, 1844. On both his father's and mother's side he was of English descent. He received a common school education and was preparing for college when his plans were changed by his father's departure for the war. He was favored in being reared in a medical atmosphere, as his father was a practicing physician. With four years of reading with his father as preceptor, he entered Rush Medical College, and was graduated in 1869. He took what was for that time an unusually long course of study—three winter courses. Leaving college he located in Evanston, then, as now, one of Chicago's choicest suburbs. After about two years of practice here he went to Europe, devoting much time to the hospitals, particularly those of London and Paris. He returned to Chicago, and on July 31, 1871, began work in that city, the scene of his uninterrupted labor up to the time of his death.

After the first years of struggle for practice, embracing the period of the great fire and the panic of 1873, professional work increased more and more, and the young man became truly busy, doing a large family practice. He was eminently successful in attaching families to him, and after giving up general work it was hard for him to resist the urgent personal

JAMES HENRY ETHERIDGE.

appeals made by his old patrons, who counted him their trusted friend and adviser.

But his leaning had been for some time toward gynecology. Even before the death of WILLIAM H. BYFORD, he had been teaching this subject clinically in Rush. Upon the death of Professor BYFORD he was, therefore, promoted to the professorship of gynecology, which chair he held up to the time of his death.

As an operator he was wonderfully deft in the use of instruments. He was an unusually rapid worker, and once having mastered the theory and practice of asepsis his results were to be favorably compared with those of the most eminent and successful surgeons. The amount of work done, the number of operations performed were, in some months, truly stupendous.

So great was it that it really left him little time to read, study and write, a fact he always regretted.

On the death of Professor KNOX, Dr. ETHERIDGE was asked to fill his chair, so that he was, at the time of his death, professor of obstetrics as well as of gynecology.

As a lecturer he was plain and straightforward, seldom indulging in theories, never shooting above the heads of his students. His teaching was eminently practical. He taught what the practitioner of medicine would find necessary in his everyday practice and not what he might need in some rare case encountered perhaps once in a decade. This, with his happy disposition, his jovial wit, his apt illustrations, made him an ever popular teacher.

It would seem as though this would be all that a man could well attend to; but Dr. ETHERIDGE found time to take an active part in other medical matters. In 1886 he was elected president of the Chicago Medical Society, and in 1890 of the Chicago Gynecological Society. He was a member of other local and national societies and was one of the founders and a life member of the International Association of Obstetrics and Gynecology. He long served as attending physician to St. Luke's Hospital, and at the time of his death was attending gynecologist to the Presbyterian Hospital, consulting gynecologist to the St. Joseph's Hospital, and professor of gynecology in the Chicago Policlinic, of which institution he was one of the founders, and in whose success he always took great pride. For many years he was secretary of the Faculty of Rush Medical College and one of the most trusted and valuable working members of that body.

This is but a plain recital of facts concerning the life of this busy, this overbusy man. Yet, with all the toil, care, responsibility and anxiety, he preserved his sweet and sunshiny nature unsoured and unclouded. He looked on the bright side of things, was hopeful and joyous. He was always a capital table-companion, was just the man one would like to travel and share a seat with on a long or short journey; for he was jolly, witty, companionable, without being coarse or offensively obtrusive in manner or remarks. But he was more than this. He was a true friend, and tears fell from many a manly eye when the startling news came that his warm heart had ceased to beat.

He will live in memory as a successful practitioner, a trained and eminent gynecologist, an operator whose dexterity and skill were most widely known, a practical and popular teacher, an active and honored participant in local and national medical affairs; but if we mistake not he will more truly live in the memory of his hosts of grateful patients and of his many lay and professional brethren who delighted to call him friend. The suffering woman who looked into his eye knew instinctively that her surgeon was also a man, and she trustingly underwent the operation, feeling that she was to be treated not merely as a mass of muscle and nerve and blood-vessels, but as the wife, the mother, as a human being. To see him visit one of these patients was a most valuable lesson on the importance of cordial sympathy with the patient as a human being and not a sick animal. Hundreds of these patients mourn his loss and share with his professional colleagues a sense of personal bereavement.

Dr. ETHERIDGE was married in 1870 to Miss HARRIET POWERS, daughter of HEMAN G. POWERS of Evanston, Ill. Mrs. ETHERIDGE and two daughters survive him. It is not the place to discuss family affairs, but it can be truly said, and by one who knows, that no husband and father was more idolized than this man, and he returned with full measure the love and devotion he received.

CORRESPONDENCE.

Medical Practice Act of Indiana.

LAFAYETTE, IND., Feb. 7, 1899.

To the Editor:—The article of Dr. Vinnedge, in the JOURNAL for January 21, calls timely attention to the Indiana law governing the practice of medicine, and to its operation.

To some, even to many, this law seems directly to violate the natural right of every man to follow any occupation of a legitimate character which may seem to him most conducive to his own welfare and interest, in so far as it may not conflict with the rights of others. But it must ever be borne in mind that the existence of a right and the justice and propriety of its exercise are entirely different and distinct things. Constituted as human society is, the right of the individual is, and must be, largely subject and subservient to that of society, while the duty of society to conserve the right of the individual, so far as is consistent with the greater right of society, is imperative. The preservation of the life and health of the individual is of supreme importance to society, and all means that will wisely and properly tend to assure and preserve that life and health, without prejudice to higher interests, are legitimate and proper.

In few things can the ordinary capacity and knowledge of men in the common walks of life give less ability to judge wisely than in those which are the subjects of the law referred to. To the majority of men is given neither the time, opportunity nor desire to acquire the knowledge which will enable them to judge wisely in these matters of such vital importance to all, and in no way can the obligation of society at large therein be more fully and justly performed than by a judicious law of the State, prudently and impartially administered by wise and judicious men.

In a general way such seems to be the character of the Indiana law. It can not be questioned, however, that on the part of very many, even in the profession, serious opposition to that law, in its principles and in its details, is already threatened, and it becomes the duty of all those who recognize its real value and importance, to promote and increase its continuance by a calm and dispassionate examination of its weak and of its strong points with a view to the eradication of the former and a greater emphasis of the latter. In this examination the just and discriminating views of Dr. Vinnedge in his paper should have great weight.

Primarily, the law should scrupulously avoid any and all interference with the natural rights of individuals not imperatively demanded by the higher public good; while it can not deny to any man the right to select his medical adviser, it may,

in the interest of the public, determine, not so much who may as who may not be recognized as a medical adviser.

While it should not, and can not properly, determine and decide upon the conflicting claims of different and differing medical schools and systems, it should, however, clearly set forth the minimum course of study, and the character of the work done by all medical schools of all systems, carefully avoiding all partisan rulings between their varying methods of carrying out their teachings.

The value of a diploma should be determined by the extent to which it bears evidence that the applicant has received at least the minimum professional education required by the legal standard, and in order to do this understandingly and justly the Board should be fully empowered to require that a full, accurate, and certified course of study of any medical school, not well and generally known, shall be laid before it upon its requisition.

But it seems to the writer that the great and important work and duty of the Board should be, thoroughly and impartially to investigate and examine, with all due and proper aids, the characters and characteristics of the individual applicants for licenses: 1. As to their moral character and conduct. This is of such prime and preeminent importance that failure here and herein should at once and promptly exclude an applicant. When the intimately close and confidential relation of the physician to the patient is considered, it should be clearly evident to all that the one who fills the position of physician should be above and beyond all suspicion, and that the patient should to the utmost be protected from even the apprehension of evil. In this connection full power should be given to the Board, and it should be made their binding duty at once to cancel the license of any physician, however high, who should be proven guilty of prostituting his professional relation by immoral and improper acts or words. 2. As to the mental and general intellectual qualifications, and acquirements of the applicant. 3. As to his professional studies, attainments and ability, covering especially his process of diagnosis. When these can not be determined fully or satisfactorily by the diploma presented, the Board should have power to make such examination as in their judgment will enable them to form a correct conclusion. In such examination, however, no attention should be given to the applicant's peculiar views of therapeutics and treatment, as such may be governed by the principles of the peculiar school to which he may belong, but, as far as possible, should be wholly individual.

In the case of those who have for years been in the practice of their profession, but who hold no diploma, the Board would necessarily be compelled to rely much upon the professional history and life of the applicant, giving full weight to his success, or want of success in his practice.

Beyond this it would seem that the Board can scarcely go. It would clearly be impossible for it to examine any large number of applicants clinically, and if it were, no guarantee of infallibility on the part of the Board could be given to justify them in compelling all applicants to agree with their personal views.

JOHN S. IRWIN, M.D.

ASSOCIATION NEWS.

The Columbus Meeting.—According to the *Dispatch* of Columbus, Ohio, February 2, active preparations are going on for the next meeting of the AMERICAN MEDICAL ASSOCIATION in Columbus in June. The chairmen of the several committees recently met and accomplished considerable looking toward the entertainment of the delegates. Plans have been presented for an exhibit building, 44 x 190 feet and to contain eighty-seven spaces, at an estimated cost of $1500. It is also expected that a souvenir book embodying the history of the city, with numerous illustrations, will be published, and the general sessions of the meeting will probably be held in the Grand Opera House, with adjacent halls for use of committee and other meetings.

PUBLIC HEALTH.

The Bubonic Plague.—Reports from Port Louis, Mauritius, indicate that the plague is increasing.

Effect of Physical Exercises on the Organism.—An international committee of hygienists, physiologists and physicians has been appointed to follow the international games and athletic sports that are to form a feature of the Paris Exposition of 1900, and study their effect on the organism. A full report is to be published.—*Semaine Méd.*, January 25.

Health in Indiana.—January reports from sixty-four counties to the State Board of Health indicate an increase in area of prevalence over the preceding month, of influenza, pneumonia, bronchitis, tonsillitis, pleuritis, scarlet fever and measles. The diseases which apparently decreased in area of prevalence were: typhoid fever, intermittent fever, erysipelas, inflammation of bowels, diphtheria, croup and puerperal fever. The deaths from pulmonary consumption increased 20 per cent.

The Sanitary Condition of Havana.—Dr. Alvah H. Doty, health officer of the port of New York, returned from Havana February 11. He had several official interviews with the various representatives of sanitary interests, both local and military. There will not be any radical changes, he said, until a new sewerage system is introduced and the streets are properly graded and paved. The cleaning of streets, so far as progressed, has been of much benefit. He highly praises General Brooke and staff for their earnest efforts. There is no friction or conflict of authority.

Conference of Health Officers.—In New Orleans, La., February 9, was held a conference of health officers and merchants of Louisiana, Mississippi, Alabama and Texas. The Atlanta agreement of 1897 relative to quarantine regulations during the existence of yellow fever was approved, with some modifications, the most important of which is this: quarantine is not to be declared against any locality on account of the existence of suspicious cases nor even on account of the existence of a few cases known to be yellow fever, provided they be properly isolated and all necessary precautions taken to prevent the spread of the disease.

Rational Use of Tetanus Serum.—"The fact seems to be established that tetanus serum has no therapeutic effect, but acts by conferring immunity. An injection of serum simultaneous with the tetanus infection confers immunity and saves the individual, and a subcutaneous injection of serum during the incubating period or incipient infection is not sero-therapy but sero-immunization. Intracerabral injections of serum act as a late immunization, like Pasteur's treatment of hydrophobia." — *Klin. Ther. Woch.*, January 8. . . . The obstetric clinics of Prague have been temporarily closed on account of an epidemic of tetanus, the number of cases progressively increasing during the past two years in spite of disinfection and the subcutaneous injections of tetanus serum which have been systematically practiced at Professor Pawlik's clinics as a prophylactic measure.—*Presse Méd.*, January 21.

A Life-Saving Plant.—It may be said that when Mr. Nathan Straus of New York City donated to the Infants' Hospital at Randall's Island a plant for the sterilization of milk, he builded wiser than he knew. The superintendent of that hospital has recently sent to Mr. Straus a letter of thanks, in which he claims to show a most extraordinary reduction in the death-rate among his infant charges, as due to the effect of the sterilizing plant. The statistics given in that letter appear to show, for the two

years last past, that 1284 cases were treated in 1898, against 1179 in 1897; and that the deaths last year were 255 against 524 in 1897, the percentage of deaths thus having been reduced from 44.41 to 19.86 per thousand. It has probably been many a long year since the death-rate in that institution has fallen below 35 per thousand.

A Water-Famine Threatened.—The water-supply of Newark, N. J., is threatened by the continued cold weather. The contract is for 27,500,000 gallons daily, and a few millions of gallons are pumped from wells at Belleville. On February 11, only 33,000,000 gallons were let go out of the reservoir. The engineer of the Board of Works contemplates pumping direct from the Passaic River, a source somewhat fought over, or else making some arrangement with the East Jersey Water Company. The trouble began with the waste through faucets as a precaution against freezing in the pipes. A week, however, may modify, perhaps entirely cancel, this paragraph. No gas or water company, however, can be compelled to thaw out their pipes. Meanwhile our outlying provinces are complaining over the intense heat.

Former Scavengers of Santiago.—An article in *Leslie's Weekly* states that: "The scavengers of the city before and during the war were dogs and vultures by the thousands. The dogs were unowned, and roamed at will, like the dogs of Constantinople, operating in their own districts, and repelling any invasion of dogs from other districts. They attacked and actually devoured one another. These dogs, according to Major Bourber, were not curs nor mongrels, but blooded animals of good size, and many were bloodhounds from the stock used in the slave times in Cuba." Many details are given in addition, to-wit: that over 4000 dogs were poisoned on account of ferocious raids upon men and animals when the city's waste became insufficient. The sewage, too, was dumped into a middle gutter of the streets; unclean vaults completely saturated the porous coral limestone and the filtrate through this medium found its way into the bay; the tropic heat; the foul condition of markets, slaughter-pens and warehouses, all added to the sanitary horrors. After the American occupation the military inspection, which was rigorously thorough, a sanitary department was organized. At first only the Cuban carrettas, or two-wheeled carts, could be obtained; then some of the Government four-mule teams and other equipments were introduced, until at the present time the condition of affairs is such as would satisfy the ambition of even the late Colonel Waring of New York street-cleaning fame.

Smallpox.—The recrudescence of smallpox in various parts of the country is still a subject of interest, and while the disease is under control or well checked, in most of the larger cities, it seems to be spreading in certain rural districts, especially in some of the Southern States, where the ignorant negro population is probably mainly responsible for the condition of affairs. In Arkansas the situation is serious enough to have called out one or two special messages from the Governor, and shotgun quarantines have been reported as established in some quarters by the excited populace. In Georgia several counties have been so badly ravaged, chiefly among the negroes, that the Governor of the State has made inquiries as to the right to enforce compulsory vaccination, and finds that under existing laws such measures by county authorities are impossible. In Ohio, to February 11, there had been 770 cases since the beginning of the outbreak, with only 7 deaths reported, a fact that speaks for a mild type of the disorder. While in the Northern and Eastern States the outbreak can be traced in many cases directly to infection from the late Spanish provinces, it appears that in some of the Southern and Gulf States it has been long prevalent. The state of affairs in Alabama was noticed in a recent issue of the JOURNAL (p. 322), and it would be somewhat remarkable if it were absolutely confined to the limits of that State.

Health Reports.—The following cases of smallpox, yellow fever, plague and cholera have been reported to the Supervising Surgeon-General of the U. S. Marine-Hospital Service for the week ended Feb. 11, 1899:

SMALLPOX—UNITED STATES.

California: San Francisco, January 31, 2 cases, 1 a railroad employe from Colorado, 1 a leper in pest-house.

Colorado: Denver, January 7 to 14, 1 case.

District of Columbia: Washington, January 31, 2 cases.

Indiana: Indianapolis, January 31, 4 cases.

Kentucky: Louisville, December 20 to February 8, 47 cases.

Michigan: Detroit, January 21 to February 4, 7 cases.

Nebraska: Omaha, January 22 to 28, 3 cases.

New York: New York City, January 28 to February 4, 1 case.

Ohio: Cincinnati, January 21 to February 3, 49 cases; Cleveland, January 21 to 28, 1 case.

On S. S. *Tarascon*, at Louisville, Ky., January 30, 3 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, November 4 to 30, 5 cases.

Brazil: Bahia, December 17 to January 7, 56 cases, 6 deaths; Rio de Janeiro, December 16 to 23, 21 cases, 7 deaths.

England: London, January 7 to 14, 1 case.

Mexico: Mexico City, January 22 to 29, 5 cases, 3 deaths; Monterey, December 23 to January 5, 2 deaths.

Russia: Moscow, January 7 to 14, 3 cases, 2 deaths; Odessa, January 7 to 14, 1 death; St. Petersburg, January 1 to 14, 7 cases, 1 death.

YELLOW FEVER.

Brazil: Bahia, December 24 to January 7, 2 cases, 1 death; Rio de Janeiro, December 16 to 23, 7 cases, 4 deaths.

Mexico: Chihuahua, January 22 to 28, 2 deaths.

CHOLERA.

India: Calcutta, December 17 to 24, 21 deaths; Madras, December 10 to 16, 6 deaths.

Diphtheria Prevalence in Pennsylvania.—In the December issue of *Public Health*, Dr. Benjamin Lee has given an extract of his official report, presented to his State Board, Nov. 17, 1898, in one section of which he treats of the above subject, especially from the point of view of the want of care on the part of the parents and teachers as to continued prevalence of the disease. He refers to an instance at Hanover, York County, where a conference was called under instructions of the Governor of the State, for the purpose of eliciting information in reference to the frequent appearance of diphtheria in that borough. The following morning certain buildings and localities which had been suspected by some of the residents of being responsible for the existence of the disease, were inspected. The conclusions arrived at were, that the history of the several outbreaks had been in no way materially different from that of the prevalence of the disease in other towns in the State of about the same size. No local insanitary conditions were found which could be assigned as a cause. While certain cases existed, in which offensive industries were permitted to be carried on, they were constantly kept under surveillance by the Health Board of the borough, and any accumulation of filth was prevented. Objections were made to a small stream which flows through the town receiving pollution sufficient to make it offensive in warm weather. To none of these conditions, however, could the disease be attributed. Since August, 1897, forty-three cases have been reported; the majority were found to have occurred among children attending school, particularly the primary school. The sanitary condition of this building was found to be good. The continued prevalence of the disease was decided to be due to the carelessness of parents who failed to appreciate the infectiousness of the disease, and the readiness with which it could be communicated, thus allowing children suffering with sore throat—which might have been, however, diphtheria in its early

stages—to go to school; also carelessness in families where the disease was known to exist, and the invasion of quarantine either on the part of families or of the neighbors desiring to offer sympathy and assistance. The occasional failure of physicians to report the disease to the local Board of Health was also in part responsible; as also the incomplete disinfection of the premises, and the use of infected books, slates and pencils in schools which may have become infected. This incident has been considered of sufficient interest and importance to dwell upon somewhat at length, for the reason that it is simply typic of what is going on all over the State.

BOOK NOTICES.

Annual and Analytical Encyclopedia of Practical Medicine. By CHARLES E. DE M. SAJOUS, M.D., and One Hundred Associate Editors, assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with Chromo-lithographs, Engravings and Maps. Volume II. Bromid of Ethyl to Diphtheria. Philadelphia, New York, Chicago: The F. A. Davis Co. 1899.

As the name implies, this is as much an encyclopedia as it is an annual review of medicine and surgery. Under the various headings, alphabetically arranged, are found not only the more recent knowledge and abstracts of work done in the past two or three years, but an epitome of old and well-established facts. Thus, under the drugs, as bromid of ethyl, chloral, digitalin, the action of the drug, its preparations, the untoward effects, its therapeutic uses, old and new, are described. As a work of reference the book is, therefore, valuable according to the merits of the articles furnished by the several contributors, and the supervision of the editors.

In general the work has been carefully done. Worthy of special mention are some of the more important, and at the same time lengthy articles, as those on "Cholera," by Rubino of Naples; "Cholelithiasis," by Graham of Toronto; "Diphtheria," by Northrup and Bovaird of New York; "Cataract," by Oliver of Philadelphia; "Deaf-Mutism," by Mygind of Copenhagen; "Dilatation of the Heart," by Vickery of Boston. Of all the articles read by the reviewer, the one by Adami of Montreal, on "Cirrhosis of the Liver," is the best. This is so, perhaps, because he handles this rather complex and hitherto not clearly understood topic in such a masterly manner as to make the subject appear simple and plain. Very briefly he gives the salient features of the pathology and symptomatology of this affection, and makes the differential points on which he bases his classification very plain indeed. His objection to the use of the term "hypertrophic," as applied to biliary cirrhosis, is certainly well taken and one that should be more generally heeded. Adami has, as shown by this article and that on "Inflammation," in Allbutt's System, a rare power of condensation and of lucid and systematic statement of fact.

The make-up of the volume is excellent, both text and illustrations being of a superior order of merit.

Diet and Food: CONSIDERED IN RELATION TO STRENGTH AND POWER OF ENDURANCE, TRAINING AND ATHLETES. By ALEXANDER HAIG, M.A. and M.D., Oxon., F.R.C.P. Philadelphia, Pa.: P. Blakiston's Son & Co. Price $1.

This is a little work that will attract more attention, from the peculiarity of some of its views taken in connection with the well-established reputation of its author, whose prior publications have certainly had a very considerable influence on medical thought and opinion. It is in fact, a plea for vegetarianism, and that of a very thorough type, for the author would discard eggs in his diet list as well as all stimulants, including tea and coffee. Of course, uric acid is the text, and it is as containing or engendering this poison that all animal food except milk and its products are rejected or condemned. The author's views and statements as to the comparative power of endurance of vegetarians and meat eaters are rather too comprehensive, and the work is to some extent a purely *ex parte* argument that does not duly take into account all the facts. The fact that a rigid vegetarian diet would seriously contract the habitable limits of the earth, to say nothing of the cutting off of very important sources of food-supply, and thus diminishing the living resources of our species, is a sufficient argument against it. Undoubtedly the publication of this work will come as something of a shock to many of those who have heretofore moulded their opinions in accordance with the theories hitherto advanced by Dr. Haig.

Ocular Therapeutics: FOR PHYSICIANS AND STUDENTS. By F. W. MAX OHLEMANN, M.D., Minden, Germany, late assistant physician in the Ophthalmologic Clinical Institute of the Royal Prussian University of Berlin, etc. Translated and edited by CHAS. A. OLIVER, A.M., M.D. (Univ. Pa.), one of the attending surgeons to the Wills Eye Hospital, and one of the ophthalmic surgeons to the Philadelphia Hospital, etc. Pp. 274. Philadelphia: P. Blakiston's Son & Co. Price, $1.75.

This book is of a handy size, and printed on rather dull paper, and in large type. It is a pity more books are not similarly produced. It is well and clearly translated by Dr. Oliver, who has not fallen into the error so frequently observed among translators, of using language so hopelessly verbose, ponderous and unintelligible as to completely disguise the original meaning of the author. German medical books are sufficiently obscure under the best of circumstances, but when brought to us in the garb of an average English translation they are frequently simply impossible. Dr. Oliver, therefore, deserves credit for his departure from these stereotyped lines, and it is to be hoped that he will still further clarify German medical literature. The book is well indexed. It is not a treatise on ocular diseases, but treats merely of the subject of ocular therapeutics, as its name implies. It performs this office thoroughly and well, and is full of valuable and practical suggestions from cover to cover. It gives many well-matured prescriptions by ophthalmologists of note, written both in the metric system and in the old apothecary system. It should be read by every ophthalmic surgeon, and especially by those of small and immature experience.

Transactions of New Hampshire Medical Society. Cloth. Pp. 276. Concord, N. H.: The Rumford Press. 1898.

This volume has to do with the proceedings of the 107th anniversary of this Society, held at Concord, N. H., May 26 and 27, 1898. Besides other data usually included in society transactions, there are papers as follows: "Expert Testimony Again;" "Hippocratic Oath and Medical Ethics;" "Value of Proper Equilibration of Nervous System;" "Middle Ear Disease in General Practice;" "Foreign Bodies in the Eye;" "Inflammation of the Middle Ear;" "Puerperal Eclampsia;" "Adenoids and their Complications in Children."

Nursing: Its Principles and Practice. For Hospital and Private Use. By ISABEL ADAMS HAMPTON. Second Edition, revised and enlarged. Illustrated. Pp. 512. Philadelphia: W. B. Saunders.

This able and complete work is, beyond all question, the best book on nursing extant. It stands without a competitor. The first edition has been retained almost in its entirety and has been greatly added to, to bring the work up to the latest methods. Illustrative of this fact is the outline of a suggested scheme for a three-years course of undergraduate instruction for nurses. Everything in the line of the organization and management of training-schools for nurses, of caring for every variety of sickness, is outlined fully in this volume. Nought in the way of omissions seems to be found. An appendix of several pages, in fine print, contains very numerous suggestions, hints and material from nurses and superintendents of training-schools, not found in any other work on nursing. Altogether, commendation of this book is the only verdict left after reading it.

Holden's Human Osteology. Edited by STEWART and REID. 8th Edition. Philadelphia: P. Blakiston's Son & Co., 1899. Price $5.25.

The fact that "Holden's Human Osteology" has passed through eight editions is conclusive evidence of the high character of the work.

The eighth and last edition contains but few changes or additions, which is but another evidence of its completeness. It stands at the head of monograms on human osteology.

Self Examinations of Medical Students. Cloth. 2d Edition. Pp. 189. Philadelphia: P. Blakiston's Son & Co., 1899. Price, 10 cents.

This little volume contains 3000 questions on medical subjects, with references to standard authorities, where correct answers may be found.

Braithwaite's Retrospect of Medicine. Edited by JAMES BRAITHWAITE, M.D., Lond., and E. F. TREVELYAN, M.D., Lond., B.Sc., M. R. C. P. Cloth. Vol. cxviii. Pp. 445. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd., 1899.

This half-yearly journal covers the period July–December, 1898, and contains, arranged similarly to former volumes, abstracts and short articles from the medical journals of this period in the several departments of medicine and surgery.

Report of Surgeon-General of the Army. Paper. Pp. 265. Illustrated. Washington, D. C.: Government Printing Office. 1898.

This report of the Surgeon-General of the Army to the Secretary of War is for the fiscal year ending June 30, 1898. A number of full-page plates of various army hospitals add to the interest of the report.

SOCIETY NEWS.

German Congress of Surgery.—This Congress will be held at Berlin, April 5 to 8.

American Orthopedic Association.—This association will hold its annual meeting at the N. Y. Academy of Medicine, New York City, May 31 to June 2, inclusive.

Society for Original Research.—At the regular meeting of this society, Cincinnati, Ohio, February 9, Dr. Joseph Eichberg presented specimens of arteriosclerosis.

German Congress of Internal Medicine.—The Seventeenth Congress of Internal Medicine will be held at Carlsbad, April 11 to 14. Subjects announced: Asystolia, leukemia and leucocytosis.

Philadelphia Academy of Surgery.—At the annual meeting of the Academy, February 6, the following officers were elected; President, J. Ewing Mears; vice-presidents, Drs. W. W. Keen, and John Ashhurst, Jr.; secretary, Wm. J. Taylor; treasurer, Wm. G. Porter.

Lucas County Medical Society.—This Society held a meeting in Toledo, Ohio, February 3. Dr. M. H. Bowman read a paper on "Immunity," and Dr. Suker one on "Chlorosis." "Manifestations of La Grippe" was the general subject for discussion, followed by a banquet.

Grand Rapids Academy of Medicine.—About thirty members of the Academy of Medicine, Grand Rapids, Mich., attended the annual banquet recently. Dr. G. K. Johnston was toast-master, and Drs. J. B. Griswold, C. H. Johnson and Henry Hulet responded to toasts.

Minnesota Academy of Medicine.—The annual session and banquet of the Academy was held in St. Paul recently. Dr. L. C. Bacon presented a paper, also J. W. Mayc one on "Primary Tuberculosis of the Intestines," reporting seven cases. Governor Lind was present as an invited guest.

New Medical Association.—The physicians of Phœnixville, Pa., and vicinity have organized the Phœnixville Monthly Medical Association, and elected the following officers: President, F. D. Emack; vice presidents, Drs. W. B. Wynne and Geo. Umstad; secretary, E. J. Hadfield.

Polk County Medical Society.—At the meeting of this Society, February 7, Des Moines, Iowa, Dr. Lewis Schooler presented a paper on "Amputation Without the Ligature or Suture," and Dr. G. B. Hibbs a paper on "Double Pleurisy with Effusion."

Northwestern District Medical Society of Michigan.—At the Forty-seventh annual meeting of this society, held at Lapeer, recently, the following officers were elected: President, B. B. Burr of Flint; vice-president, Dr. Platt of Port Huron; secretary, S. E. Connor of Port Huron. The next meeting will be at Port Huron.

Central District Medical Society of Missouri.—This Society held its quarterly meeting at Sedalia, February 7. Papers were read by Drs. W. C. Overstreet, W. O. Dunlap, C. F. Wainwright of Kansas City, A. E. Monroe of New Lebanon, and W. J. Ferguson.

Bucks County Medical Society.—Prof. W. L. Rodman of Philadelphia considered the radical cure of hernia, and Prof. L. Webster Fox, also of Philadelphia, gave a talk on "Diseases of the Eye," before this Society at the mid-winter meeting held at Quakerstown recently.

Allen County Medical Society.—This Society held its regular meeting at Ft. Wayne, Ind., early in the month. Dr. Porter reported a case of sarcoma, which he had successfully treated by the serum process, and Dr. Bulson a case of unusual susceptibility to cocain and one of excessive hemorrhage following the removal of tonsils.

N. Y. State Medical Society.—At the recent meeting this society elected the following officers: President, Willis G. MacDonald of Albany; vice-president, John Gerin of Auburn; secretary, F. C. Curtis of Albany; treasurer, C. H. Porter of Albany; legislative committee, Frank Van Vleet of New York, A. G. Root of Albany, and Ernest Wende of Buffalo.

Arizona Medical Association.—At the eighth annual meeting, just held, seven counties of the Territory were represented. The next meeting of the association is to be held at Prescott, and the following officers were chosen for the ensuing year: President, Winfred Wylie; first vice president, T. B. Davis; second vice-presidents, S. B. Claypool and N. H. Natas; secretary, E. Plath of Phœnix; treasurer, W. B. Purcell.

Iowa State Medical Society.—Preliminary announcement of the forty-eighth meeting of the Iowa State Medical Society, to be held at Cedar Rapids, May 17-19, is noted. The president is H. B. Young, Burlington; the secretary, Jas. W. Cokenower, Des Moines. The program will be mailed to members about May 1. This society is making an effort to have medical societies organized in each county in the State in which none now exists.

Northwestern Medical Society.— The annual banquet of this society was held in Philadelphia, Pa., recently. The following officers were elected: President, John A. Boyer; vice-president, Samuel P. Gerhard; secretary, W. C. Robertson; treasurer, H. Hanna; censors, Charles Herwisch, Howard S. Kinne, D. A. Modell; members of executive committee, Wendell Reber, chairman, J. M. Koch and Frank Massey.

Chicago Medical Society.—At a clinical meeting held February 8, Dr. F. Kreissl narrated a case of hypertrophy of the prostate, with retention, cured by Bottini's operation, and also reported a case of obstruction of the left ureter, which was removed by ureteral catheterization, and a case of extensive congenital stricture in which he performed a perineal operation with very satisfactory results. Drs. James Nevins Hyde, Arthur Dean Bevan and Ludvig Hektoen jointly reported a case of blastomycetic dermatitis. Dr. Hyde discussed the dermatologic aspects of the case, Dr. Bevan the surgical, and Dr. Hektoen the pathologic. Dr. Edward H. Ochsner re-

ported a case of syringomyelia and exhibited the patient, and Dr. J. Homer Coulter narrated a case of pharyngomycosis.

Allegheny County Medical Society.—At the fifth annual reception and banquet of this Society, held at Pittsburg, Pa., Dr. James T. Whittaker of Cincinnati, Ohio, was the guest of honor and presented the principal paper of the evening, on "Arterial Sclerosis." One of the features of the evening was the adoption of the resolution endorsing the position taken by Dr. W. H. Daly, a member of the Society, who was on the staff of General Miles, and was Surgeon-in-Chief, United States Volunteers, regardinghis recent testimony as to the "embalmed" beef furnished the soldiers.

Luzerne County Medical Society.—At the recent meeting of this society, held at Wilkesbarre, Pa., Dr. L. L. Rogers read a paper on "Heredity," and Dr. C. H. Miner one on "The Serum Test for Typhoid Fever." Dr. Miner stated that in examinations which he had made in cases of continued fever, where the diagnosis remained in doubt, after the sixth day the test had proved of great value. Among these cases was one each of osteomyelitis, meningitis, obscure septic infection following an operation, appendicitis, pelvic abscess, and typhoid following labor.

Philadelphia County Medical Society.—At the meeting held February 8, Dr. J. T. Rugh reported "Two Cases of Unusual Length of Umbilic Cord with in Each Case Five Turns about the Child's Neck." Dr. Frederick A. Packard reported a case of gangrene following amputation of the posterior tibial artery by an atheromatous plate occurring in a woman past middle life. The principal point of interest about the case was that the embolus was found corresponding to the line of demarcation, which was found by a proper dissection. Dr. Joseph Hearn, in discussing gangrene of the foot in general, advised a high amputation, and thought that as a rule the point of election should be above the knee-joint. Dr. Solomon Solis Cohen made a few remarks regarding the subject of emboli as the cause of gangrene, and thought that "intermittent claudination," first described by Charcot, and later by a certain English writer, as well as by Virchow, was very frequently an early symptom of approaching gangrene. He had seen this sign present in a case which was subsequently reported. Dr. Packard stated that emboli as the result of atheromatous plates did not occur frequently, as might be expected, when one considered that atheromatous arteries formed one of the most common conditions found in patients in all large hospitals.

Wayne County Medical Society.—At the regular meeting of the Society, February 2, Dr. Samuel Bell, Newberry, Mich., read a paper entitled "Some Mental Defects Following Diseased Physical Conditions." The Doctor considered only such cases of insanity as occur in females, especially those who suffer from diseases of the procreative organs. He said that it is conceded by the best authorities that insanity is often caused by diseases of the generative organs, and also that mental disease frequently disturbs the normal action of other organs of the body and, in some instances, modifies diseased action itself; while, on the other hand, there are those who believe that mental conditions are practically independent of any disease of the body. He declared that his experience had taught him to take the human organization in its entirety, bearing in mind the relation which each organ or part bears to each other, and the possible result upon the brain and nervous system when one or more parts become diseased. The Doctor read the statistics of operative cases as treated in the London (Ont.) Asylum during the past three and one-half years, which follows: One hundred and ten insane women were operated on, representing 196 distinct operations, all of them upon the organs of generation. Of these, out of 12 ovariotomies, 7 recovered and 4 improved; of the 17 hysterectomies, 5 recovered and 3 improved; of the 22 cases of suspension of the uterus, 4 recovered mentally and 11 have showed mental improvement; of 30 cases for removal of diseased cervices, 12 are now well mentally and 9 others have improved; of 21 cases in which minor uterine diseases were treated, 12 recovered and 2 improved; of the 8 remaining cases, none recovered, and in only 3 was any improvement observed. At the Upper Peninsula Hospital the author had examined 26 out of 31 admitted. Eleven had cervical laceration, 10 had endometritis, 5 had ovarian disease, 13 had a discharge, either mucous or mucopurulent, or both; 6 had perineal rupture, 8 had uterine displacement, 10 ulceration, 5 congested and enlarged os, 3 vaginitis, 1 ovarian tumor, 1 pinhole os, 4 menorrhagia and 5 pelvic cellulitis. The improvement following the treatment for the above physical derangements was followed by improvement in the mental condition in the majority of cases treated, though not in all. The Doctor then considered the question of puerperal insanity. He said that 10 per cent. of all mental diseases in women originate in connection with the function of reproduction, there being insanity of gestation, insanity of lactation and insanity during the time of uterine involution. Besides these causes there are also: 1, shock to nerve centers following severe postpartum hemorrhage; 2, shock to patient during the lying-in period, induced by bad or startling news; 3, disgrace attending illegitimate childbirth. As to the treatment the Doctor said that patients usually could not be cured at home. Strangers have a better influence than relatives or friends. Rest in bed and a quiet room were essential, with nutritious diet, proper treatment of any abnormal physical condition and removal of septic matter if the uterus contains any.

NECROLOGY.

GEORGE HENRY ROHÈ, M.D., Sykesville, Md., died in New Orleans, La., February 6. Dr. Rohè was borne Jan. 26, 1851, began the study of medicine in 1867, and received his degree of M.D. from the School of Medicine, University of Maryland, in 1873. He afterward studied dermatology and then spent several years in travel, returning to engage in general practice in Baltimore, when he was appointed Superintendent of the Maryland Hospital for the Insane at Catonsville, in 1891. In 1885 the Doctor was acting assistant-surgeon in the United States Army, and from 1882 was connected with the College of Physicians and Surgeons of Baltimore. At the time of his death he was President of the American Public Health Association; a member of the AMERICAN MEDICAL ASOCIATION, the American Association of Obstetricians and Gynecologists, its President in 1893; a member of the Medico-Chirurgical Faculty of Maryland, also its President in 1894; a member of the American Academy of Political and Social Science, of the Committee on Organization of the First Pan-American Medical Congress, besides other American and foreign societies. Dr. Rohè was also the author of a text-book on hygiene, a work on practical electricity and surgery, and a manual of skin diseases.

ALVIN C. HENDERSON, M.D., University of Michigan, 1872, also Long Island Hospital Medical College, 1872, died in Brooklyn, N. Y., February 6. He was born in Cadiz, Ohio, fifty years ago; his wife died about five years ago, and a son of sixteen was killed by an explosion in his father's laboratory. He himself had his toe severely injured by the weight of a heavy fellow-passenger in a trolley car, a few months ago. The resulting gangrene necessitated amputation of the left leg, in the Long Island Hospital. He was physician under Coroner Delap of Brooklyn.

HENRY W. OWEN, M.D., Detroit, Mich., a veteran of the Civil War, aged 78 years, and according to the press dispatches, founder of the Soldiers' Home at Washington, died January 24. He entered the army at the beginning of the war as a special surgeon in the Fourth Ohio. Soon afterward he was transferred to the Seventy-fifth Ohio, and remained with that regiment until he was detailed by General Burnside, just after the battle of Fredericksburg, to establish a field hospital. Following this he had charge of the field hospitals until he was ordered to Washington, where he was instrumental in organizing the Harewood Hospital, which is now the Soldiers' Home. Dr.

Owen remained in the service of the government a year after the close of the war.

RUFUS W. PEACOCK, M.D., N. Y. University, 1875, died February 7, at his home in Jersey City, N. J., where he had lived since 1875. He was born at Goldsborough, N. C., June 18, 1827, and practiced in the South for eighteen years. His father was a wealthy planter and his grandfather an aid-de-camp on General Washington's staff.

WILLIAM CUNNINGHAM CAMPBELL, M.D., College Physicians and Surgeons, N. Y., 1880, son of the late Dr. John L. Campbell, died at his home in New York City, February 5.

JOSEPH BORDEN GOODENOUGH, M.D., College Physicians and Surgeons, N. Y., 1852, of Long Branch, N. J., died of cardiac disease, February 1.

HARRY YOUNG, M.D., serving with the Utah Artillery Division at Manila, was captured and murdered by the Filipinos, February 5.

JAMES EDWARD KEEGAN, M.D., aged 27 years, died of pneumonia, February 10, at his home in Jersey City, N. J., where he had practiced about four years.

EDWARD NORTH, M.D., Jefferson, 1868, was killed by an express train on the Pennsylvania Railroad on the afternoon of February 11. He was prominent in South Jersey, was a member of the State Assembly in 1884 and 1885, president of the Board of Health, and also a member of the Board of Education, his home being Hammonton, N. J. He leaves a wife and three children, also three brothers, all physicians of Atlantic City, as well as three sisters, resident there.

CLARK A. DEAKYNE, M.D., Philadelphia. Pa., died February 6, from chronic nephritis. He was a native of Delaware, being born in Newcastle in 1838. He was a graduate of the Pennsylvania Medical College, class of 1859, and practiced for forty years. After he ceased to practice, Dr. Deakyne entered largely into charitable work, and there are several institutions in this city which owe their achievements to his personal efforts in their organization.

ORVIS F. BIGELOW, M.D., Amherst, Mass., February 2, aged 63 years. . . . M. J. L. Burchard, M.D., Princeton, Ky., February 5. . . . D. O. Crist, M. D., Indianapolis, Ind., January 31, aged 74 years. . . . S. J. Engle, M.D., Susquehanna, Pa., February 1, aged 44 years. . . . J. M. Estill, M.D., Lexington, Va., January 25, aged 55 years. . . . Charles S. Grant, M.D., Saratoga, N. Y., February 5, aged 54 years. . . . Wry Grayson, M.D., of Washington, D. C., at Orlando, Fla., aged 72 years. . . . C. W. Hardin, M.D., Longwood, Va., January 30, aged 85 years. . . . F. M. Lancaster, M.D., Wayside, Md., January 30, aged 70 years. . . . Charles W. Morse, M.D., Dowagiac, Mich., January 24, aged 71 years. . . . W. T. Pirie, M.D., Waco, Texas, February 2. . . . Robert C. Stewart, M.D., University of Pennsylvania, 1872, of Shippensburg, Pa., February 9.

MISCELLANY.

Dr. James C. Avary.—After ten years' service on the Board of Health of Atlanta, Ga., Dr. Jas. C. Avary has resigned.

Dr. Thomas H. Manley.—We learn that Dr. Thomas H. Manley, New York City, has been reinstated as visiting surgeon to Harlem Hospital.

Dr. Walter Greiss.—At the meeting of the trustees of the Cincinnati Hospital, February 6, Dr. Walter Greiss was elected resident physician.

Dr. Clarence W. Leigh.—Dr. Clarence W. Leigh, Chicago, has been named as past assistant-surgeon with the rank of lieutenant, of the Illinois Naval Militia.

Harvard's New Professorship.—We are informed that a professorship of hygiene is to be established, which in time will yield a larger income than any salary now given to any professor in the University. The incumbent of the chair is to be not only a teacher but a practitioner, and his services, are to be at the disposal of all the students.

Dr. Aaron Schloss.—Dr. Aaron Schloss of Stockton, Cal., has been appointed adjunct professor to the chair of the Sciences of Eye, Ear, Throat and Nose, in the College of Physicians and Surgeons, San Francisco.

Meningococcus in Nasal Passages.—Schiff found the meningococcus in the nasal passages of seven out of twenty-seven healthy persons examined, pathogenic for mice and guinea-pigs. Autoinfection from the nose may explain the origin of the disease.—*Rev. Gen. de Path. Int.*, January 5.

University of Tennessee.—It is reported that at the recent meeting of the Board of Trustees of the University of Tennessee, it was decided that the medical department would continue to be located at Nashville, and permission for a new building costing $50,000 was given. The new site selected for the building is more centrally located than was the old building recently burned.

"Gynecologic Diseases": Correction.—In the article under this head in the JOURNAL of February 4, beginning on page 221, column 2, line 12, read: "If there is relaxation of the pelvic outlet, without much accompanying prolapse of the vaginal walls, which does not seem to produce symptoms as above enumerated, or uterine displacement, operative treatment is *not* indicated."

Unusual Convulsions in Child.—In *Pediatrics* for February 1, Fischer reports a case of convulsions occurring in a child every fifteen or twenty minutes, beginning from an overloaded stomach, and accompanied by high temperature and marked thirst. The convulsions lasted over four days, with ultimate recovery following varied therapeusis, local depletion by leeches seeming markedly effectual.

Rabies an Intoxication.—The latest theory in regard to rabies assumes that the dog secretes some poison in his saliva, like snake poison, and thus hydrophobia is not an infectious disease like cholera or typhus, but a poisoning as from a snake bite. "We must accustom ourselves to the idea that the production of toxins is a very general function of living cells.—*St. Petersb. Med. Woch.*, January 7.

Library Burned.—A disastrous fire in Johnstown, Pa., on January 25, destroyed the library of the late Dr. Joseph M. Toner. This collection was unique and chiefly of a medico-historic character. Although during life Dr. Toner made a large addition to the Congressional Library, along the same lines, the gift did not quite tally with the exacting tastes of the antiquity hunter.

Ohio State University.—It is reported that the Board of Trustees of this University has decided to establish a short course of lectures for the instruction of health officers throughout the State and for those of mature years who may be fitting themselves for such office. The course will probably be given in April and May of each year and at the close of the course a certificate given stating the amount and character of the work accomplished.

Pellagra.—C. Lombroso has for years insisted that pellagra was caused by eating decayed corn, and his theory is now generally accepted. The substance in the decayed corn that causes the disease produces a pseudo-strychnin intoxication, and frictions with salt solution, and the administration of Fowler's solution have proved the most effective therapeutic measures. Since the introduction of prophylactic measures, destruction of spoiled corn, etc., the number of cases in Italy has been steadily decreasing.—*Vienna Klin. Woch.*, January 12.

"The Good Regent."—The above is the title of a drama written by Sir Thomas Grainger Stewart of Edinburgh. It takes the form of a chronicle play in blank verse, is historic in its theme,

and the leading personage is the Regent Murray, who figured in the time of Mary Stuart. Dr. Stewart is said to have developed the play as a means of recreation during an autumn holiday. It is not impossible that the drama may be publicly presented and that Dr. Stewart will make himself appear in the title rôle.

Mosquito Theory of Malaria.—The priority of the idea of carriage of the infection of malaria by mosquitoes was editorially credited to Laveran in the JOURNAL of February 4 (p. 249). In fact this theory decidedly antedated the publication of Laveran some two years ago, it having been very fully elaborated in a paper read before the Philosophical Society of Washington, D. C., Feb. 10, 1893, by Dr. A. F. A. King, which brought out quite thoroughly the arguments in favor of this origin of malarial inoculation.

Modifications in Progressive Paralysis.—Mendel reviews the modifications in progressive paralysis, noted in all civilized countries during the last quarter century: dementia is much more common, the intermissions are more frequent and last longer, often allowing the resumption of business for years; the great increase in the number of cases and the number of women affected, when formerly it was a disease almost exclusively masculine, and the younger age of the subjects. He suggests that these modifications may be due to some modification of the syphilitic toxin.—*N. Y. Med. Monats.*, January.

"The Conscientious Objector."—It is not easy to get any amusement out of the New English laws about vaccination and conscientious objections against the operation, but the London *Lancet*, Dec. 31, 1898, refers to the following somewhat comic case: One father presented to the justice his objection to the vaccination of his young son on the ground that he had lost two children from diphtheria following vaccination. The justice refused to entertain this man's plea as having anything to do with the operating of conscience or of ordinary intelligence.

Fate of Medical Aspirants in New York.—Dr. M. J. Lewi, on behalf of the State Board of Medical Examiners, reports that out of 809 applicants representing the regular school, 29.9 per cent. were refused. Among the New York graduates there was one rejected paper for every three students. It was decided to hold only four examinations each year instead of five. The faculties of the various medical schools had been asked to furnish thirty questions on every branch taught in these schools, for the use of the question committee. For the comfort of the disappointed, it may be recalled that Governor Roosevelt of the Empire State some years ago suggested the police force as an opening for such young men as had failed in their college examinations, but none appeared to take him seriously.

Specific Immunity Conferred on Healthy Animals.—S. Goldberg announces that by means of the serum of guinea-pigs immunized against the vibrio of septicemia, a serum can be obtained in healthy guinea-pigs that is bactericidal for the vibrio of septicemia. This effect is apparent twenty-four hours after the injection of the serum. It is extremely probable that this immunity is not purely passive, but that the organism takes an active part in the development of the bactericidal property. The therapeutic effect of injections of serum in infective diseases must be attributed in all probability to this bactericidal property of the serum of the animal organism.—*St. Petersburg Med. Woch.*, Dec. 31, 1898.

Birth Statistics for France and Germany.—The annual birth returns of certain foreign countries are watched with interest not only by the sanitarian but by the militarist. The statistics of 1897 continue to show the falling off in France as compared with Germany. In that year 859,107 births were registered in France, one of the smallest totals of the century. In the same year 751,019 deaths occurred. In Germany, 1,991,125 births were registered and 1,205,492 deaths. Marriages, which are generally regarded as a scale by which to measure the wealth of the people, took place in Germany in the proportion of 8.3 per 1000 of the population, and in France 7.5 per 1000. To summarize, in Germany marriages and births are increasing in number, and the mortality is moderate; in France births are decreasing, while marriages are very slowly increasing, and the mortality is likewise moderate.

Hydatid Cysts of Bones of the Pelvis.—Döbbelin reports the case of a workman of 35 years, with a fluctuating tumefaction in the right inguinal region, developing toward the anterior superior iliac spine, diagnosed tuberculous osteitis. An incision released a quantity of pus, and the ilium was found the seat of numerous minute hydatid cysts. After extensive resection sound bone was reached, the wound tamponed and the cicatrization was complete in a couple of months. The cysts were multilocular in twenty-two out of the twenty-three cases of hydatid cysts of the pelvic bones published. The destruction of the bone was so extensive in one case that the femur had penetrated into the small pelvis, the acetabulum region having been entirely destroyed. Only four cases cured are on record. —*Semaine Méd.*, January 4.

Census of the Russian Empire.—According to the last census of Russia, recently completed after six years of laborious enumeration, the population of Russia and of the Grand Duchy of Finland, number 129,211,114 persons. The average density of the population is seven inhabitants to the square kilometer. The minimum density is 1.6 to the square kilometer and the maximum 8.46. The sexes are thus divided: In European Russia there are 100 men for every 102 women. In the Polish provinces there are 98 women to every 100 men; in the steppes there are 89; in the Caucasus also 89, and in Turkestan, 93. There are 19 cities which have over 100,000 inhabitants, and 35 which have from 50,000 to 100,000. In 1892 the empire only included 108,500,000 inhabitants. The Chinese Empire and the British Empire alone have a greater population than Russia. China has 402,000,000, and Great Britain 315,000,000.

Mechanism of Agglutination.—A communication in the *Vienna Klin. Woch.*, January 5, from the Vienna Serotherapeutic Institute, explains the process of agglutination by the production of precipitates. These precipitates are the indispensable preliminary to agglutination. In specific agglutination it is the specific agglutinating substance which, in solution in the bouillon or adhering to the bodies of the bacteria, forms a specific precipitate on the addition of homologous serum. The non-specific agglutinations are caused by the precipitation of the albuminoid substances with alcohol, chrysoidin, etc. This precipitation agglutinates the micro-organic and anorganic particles. This assumption of a common mechanic principle underlying both specific and non-specific agglutination explains and harmonizes the observed facts.

Medical Expert Testimony.—Dr. Homer O. Jewett, Cortland, N. Y., in a paper on the above subject read before the N. Y. State Medical Association, says, perhaps somewhat vehemently: "Doctors who are ambitious to pose as experts and secure emoluments, sometimes linger about law offices, courting favorable attention and awaiting demands for their services, like vultures hovering over a prospective battle-field waiting for the spoils. Such doctors, incited by the promise of liberal fees and flattered by the attentions and blandishments of the men of law, will condescend to search authorities, look up points and precedents and advance suggestions to assist unscrupulous counsel in achieving a victory entirely irrespective of the merits of their causes. Yes! such have been known to boast of the ample fees received and the popularity they had gained as experts, by aiding attorneys to win their cases in the face of truth, law and equity. Money is tempting (*sic*) even to a doctor; flattery is always potent and prejudices are easily, sometimes unwittingly, imbibed by intimate association and

familiar converse with an intriguing party in a suit or his attorney.

New York Pure Beer Bill.—According to the *Outlook* of February 11, the pure food bills which for several years have been so popular in the western legislatures and in Congress have been supplemented in the New York Legislature by a pure beer bill. This bill provides that no fermented liquors containing any other ingredient than "pure barley malt, pure hops, pure extract of hops, pure yeast and pure water," shall hereafter be manufactured or sold in the State of New York; and that no fermented liquors shall be sold within three months of its manufacture. Fines are provided for violations, one-half of the fine to go to the informers, the other half to the State Health Department.

Effect of Withdrawal of Water on Nerve-Cell.—Brasch reports investigations with intraperitoneal injections of glycerin, concentrated salt solutions, administration of natrium sulphuricum, calomel, etc., which deprive the tissues of water. The effect is the same with each: the cell nucleus shrinks until it disintegrates into fine granules, which is evidently not a necrobiotic process, but a purely mechanic alteration caused by the withdrawal of the moisture, and hence is capable of restitution. This fact is important in view of the diseases, enteritis acuta, dysentery and Asiatic cholera, in which life is threatened by the rapid loss of water from the organism.—*Fortschritte der Med.*, 1898, 21.

Marmorek's Antistreptococcus Serum.—Moncorvo of Rio de Janeiro adds a very favorable account of the action of Marmorek's serum in infantile bronchopneumonia and acute lymphangitis to the mass of contradictory reports in literature. Some advocate it strongly; others report abscesses around the injecting point and still more serious inconveniences. Chantemesse has had only thirty-five deaths in a thousand cases of erysipelas in which it was injected. Moncorvo mentions the identity of the microbe causing erysipelas and lymphangitis, and the prompt cures of two cases of the latter, in children, who received ten grams in two injections. Its effect in bronchopneumonia was also pronounced, and no local accidents or after-effects were observed in any case.—*Bull. de l'Acad. de Méd.*, Dec. 27, 1898.

Idiopathic Pulmonary Congestion.—Carrière (*Revue de Médecine*, 1898, Nos. 10 and 12, 1899, No. 1) considers at length the condition described by Woillez as idiopathic pulmonary congestion, but which the description suggests may be a modified or abortive form of pneumonia. From this it is said to differ in its less severe onset, in its greater pain in the side and its greater dyspnea early. The expectoration of congestion is said to be gummy and not very viscid, and the crepitant râle to be less often heard when the former exists. From his study Carrière concludes that the affection is dependent upon the activity of various species of micro-organisms, but especially the pneumococcus, and next, but much less in frequency, the staphylococcus and the streptococcus. In all instances the virulence of these bacteria is greatly attenuated, or diminishes rapidly, the pneumococcus, for instance, losing its virulence in cultures within four days. The opinion is expressed that when the virulence of the micro-organisms is maintained they give rise to pneumonia, when attenuated, to congestion.

Inguinal Hernia.—From the standpoint of the army and navy surgeon, Braisted (N. Y. *Medical Record*, January 28, p. 116) sums up as follows the service-conditions justifying operation for hernia: 1. Cases absolutely incapacitated for duty, in which the physical condition is such as to permit of operative procedures. 2. All cases up to the age of 35 or 40 years, with good muscular development, whether incapacitated for work or not. 3. Cases in which immense strain has forced a hernial protrusion, and left impaired an otherwise strong ring. 4. All cases in which trusses prove irritating or dangerous. 5. The operation is to be recommended for otherwise desirable applicants for enlistment, and these men are to be considered fit for enlistment after the operation has proved its permanency by from four to six years' trial. 6. In all cases in which strangulation is actually present or threatens, or in which recurring discomfort and pain show the tendency to hernia, and in which the slight repeated engagement of the intestine in the internal ring calls attention to the liability of this accident.

Enteritis Follicularis in Childhood.—Prof. W. E. Tschernow has established the existence of an infection of the solitary follicles, Peyer's patches and Lieberkühn's crypts, without involvement of the mucous membrane, in children. The clinic course varies in different cases: sometimes there is dyspepsia accompanied by colitis; sometimes there is dysentery of a typhoid character, with collapse. The general health suffers and the nervous system is more or less affected, showing the infective character of the disease, which he attributes to the bacterium coli or some similar micro-organism. It is differentiated from dysentery and colitis by the lack of noticeable pain in the left iliac fossa and by the absence of any swelling of the colon descendens, so that it is difficult or impossible to palpate it. The passage, several times a day, of feces mixed with the discharges, differentiates it from other dysentery passages. The prognosis is not unfavorable, but the course of the affection is often very protracted. Milk diet and intestinal antiseptics are the main factors in treatment.—*St. Petersburg Med. Woch.*, Dec. 31, 1898.

Racial Types of Europe.—Dr. J. Deniker gives in *L'Anthropologie*, the results of his studies on the principal racial types of Europe, excluding those which belong to immigrants of historic times, such as the Gypsies, Jews, Moors, Finns, Lapps and Huns. These primary types are: 1, a tall, blonde, long head (dolichocephalic) of the North, now called the Teuton by many anthropologists; 2, a short, blonde and rather broad headed type of the East, e. g., Great Russia and Eastern Prussia; 3, a short, dark, long head of the Mediterranean, sometimes called Iberian, though the name is too local for this widely-spread element; 4, a short, dark, broad head (brachycephalic) of Middle Europe, including the Central French and South Germans, which is now called Celt or Rhaetian, and sometimes the Alpine races; 5, a tall, dark (mesocephalic) or medium-headed type along the Mediterranean littoral; 6, a tall, dark, broad head about the Adriatic. Deniker does not claim that these types are original. They probably result from the union of several types, but these types persist over wide areas.—*London Globe*

Paralysis Agitans Consecutive to Trauma.—In regard to the frequency, Krafft-Ebing mentions that he has had seven cases of traumatic etiology out of a total of 110; Eulenberg, 2 out of 46; Heimann, 3 in 19. He notes that the paralysis always commences at the point of the injury, while in his experience the classic paralysis commences regularly at the distal extremity of a superior member. Even the slightest and most diverse accidents may lead to paralysis agitans. Walz found in 27 cases, general cause in 6, stab or cut in 4, burns 1, freezing 1, luxation, dislocation or fracture 4, contusions 8. In several of Krafft-Ebing's cases there had been no psychic shock, and in none was there a neuritis ascendans. Antiphlogistic and anodyne treatment is indicated, especially for elderly persons, after trauma, to ward off such a serious consequence as paralysis agitans. He closes his article in the *Vienna klin. Woch.* of January 12, with the observation of a man of 38 years, in whom the paralysis did not develop until six years after the trauma, and then was induced by overexertion in farm work. He calls attention to importance of local overexertion as a hitherto overlooked factor in the etiology of this affection.

New Bullet Used by the English in the Soudan.—The JOURNAL has commented on the inhumanity of the Dum Dum bullets used by the English in India (xxx, p. 1416), but the new bullet used

in the Soudan seems to be even more murderous in its effects, and the English journals are attributing the success of the campaign to this fact in some measure. Professor von Bruns, who called attention to the violation of the spirit of the St. Petersburg Convention by the Dum Dum, has been testing the new bullet, which differs from the usual Lee-Metford bullet by a small open cavity at the point, lined with the nickel that forms the entire coating. The effect is the same as with an ordinary bullet at a distance of 600 meters, but within this distance—and fighting with uncivilized forces is usually at closer range—the bullet "mushrooms" in the soft parts, although less destructively than the Dum Dum, but the bones are more severely injured, and the bullet explodes with great violence, from compression of the air in the hollow tip, when it comes in contact with the fluid in the hollow organ.—*Semaine Med.*, January 18.

Mortality of Havana.—According to the *Archivos de la Policlinica*, Havana, with a population of 200,000, had in 1895 7724 deaths; in 1896, 11,400; in 1897, 16,948, and in eleven months of 1898, 18,480. The severe form of chronic malarial infection with generalized edema, which has been responsible for so many deaths, is known in Havana as "Weyler fever." The *Archivos* rejoices at the close of Spain's government of "despotism, injustice, inequality and boodling," mentioning as an especial scandal the interested protection extended by the Spanish governors to prostitution. It states that only 25 per cent. of the population of Cuba can read and write, and that with the exception of a private school, there is not a single school building in the island erected for the purpose. All the schools are in small private houses and gymnastic exercises are unknown. The Medical Department of the Havana University has its courses in three remote parts of the city. The Spaniards opposed no restrictions to scientific publications until 1895, when they imposed a tax which caused the suspension of some. Others continued, but have distributed their issues gratis since to avoid the tax, among them the *Archivos*.

The Samuel D. Gross Prize.—The second quinquennial prize of $1000, under the will of the late Samuel D. Gross, M.D., will be awarded Jan. 1, 1900. The conditions are that the prize shall be awarded every five years to the author of the best original essay, not exceeding 150 printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens. It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy in the Samuel D. Gross Library of the Philadelphia Academy of Surgery. The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut St., Philadelphia, before Jan. 1, 1900. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The Committee will return the unsuccessful essays, if reclaimed by their respective writers or their agents within one year. The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

The Retina in a Case of Partial Macropsia.—Professor Holmgren published a couple of years ago (*Nordiskt Med. Ark.*) a study of his own right eye which was affected with relative scotoma, partial color blindness and macropsia for objects projecting an image over .75 millimeter on the retina, which were seen two and a half times larger than with the other eye. He explained this macropsia by assuming that the cones had learned to see objects in their natural size, but that they became compressed at some given moment and two and a half times as many cones were crowded into the normal space, causing them to see objects two and a half times as large as normally. He added that he had bequeathed his eye to the professor of histology for examination. After his death the eye was duly examined, but as twenty-four hours had elapsed it was difficult to distinguish between lesions and cadaveric changes. The full report is published in the *Upsala Läkare Forh.*, July 4, 1898. It can be summarized as the discovery of hemorrhagic cysts and a number of small recent hemorrhages. Around these cysts the elements of the retina presented no pathologic alterations, but seemed to be compressed and bent out of their natural position. There was also in the choroid a membrane of vascularized conjunctiva tissue.—*Rev. Gen. d'Ophth.*, Dec. 31, 1898.

The Contract Nurse Bill.—Dr. Anita Newcomb McGee, in the *Evening Star* of Washington, D. C., February 3, throws ridicule on H. B. 11770, now under consideration, to provide for the employment of women nurses in the Army:

This bill, instead of placing the superintendent of nurses at the head of her department, under the Surgeon-General, creates an extraordinary nursing commission, consisting of the Secretary of War (*ex officio*) the general commanding the army, the adjutant-general, the Surgeon General and three women, which commission is to "have general charge of the nursing service," and is also to make rules to govern the hospital-corps men when on duty in the hospitals. In other words, this commission will control the work of the rank and file of the medical department and have authority not only greater than the Surgeon-General, but also greater than the Secretary of War. To carry out the plans of the ladies who have prepared this bill the women members of the commission will have to propose considerable changes in military methods, some of which would conflict with existing army regulations and would, if adopted, render the latter null and void. If one of the officers on the commission should vote with the women they have a majority which would overrule the Secretary's regulations and present the unique spectacle of an officer being practically the superior of his chief. If, on the contrary, the three officers should sustain the Secretary, the efforts of the women commissioners would result in nothing. If it is maintained that the Secretary might himself be willing to amend the army regulations, I reply that he has that power now, without restriction; has not the least need of a commission to relieve him of the responsibility.

Scientific Basis for Treating Infective Diseases.—Professor Wassermann observes that although we have no specific remedy for many diseases, yet our therapeutics are founded on a scientific basis. We know that the normal course of most infective diseases is most closely connected with the appearance of immunity, and that this depends upon the appearance of certain substances in the blood serum. It has been established that the antitoxins of cholera and typhus, for example, originate in the bone marrow, the lymph-glands and the spleen. Tremendous functional demands are therefore made upon these organs in the neoformation and regeneration of their cells, while at the same time they are fulfilling their usual regular function, the formation of the blood. He considers the anemia accompanying certain diseases due to the partial failure of these organs, especially the marrow, to accomplish all these functions simultaneously required of them, rather than to a destruction of the red corpuscles. The organism supplies its own specific remedy for the disease, and the scientific basis for therapeutics is to nourish, support and assist the organism in its efforts, and promote them by asepsis, preventing mixed infection, and all measures, like hydrotherapy, which support the hematopoietic and especially the leucoplastic apparatus in its regenerative activity. By these means the natural healing process, which is always accompanied with danger, is rendered easier for the organism, and the physician, although he has no specific remedy in his hands, is yet a most important factor in the final results.—*Ztft. f. Diet. u. Phys. Therapie*, ii, 1.

The Unsanitary Court Oath.—In New York City, several of the police magistrates have refused to require witnesses to kiss the Bible in taking oaths. One judge, in speaking to a re-

porter, stated that he had had his attention forcibly called to the perils of the kissing-oath by an apparently well-authenticated case wherein death was said to have resulted to a young witness who had occasion to testify in his court. He believed that this young girl contracted her fatal malady from the cover of the court Bible, which had been handled and kissed by persons innumerable. Her lips, it is said, were chapped and were noticed to be slightly bleeding at the time she was in court. He further said that the covers of some of the court Bibles have been noticed by him to be filthy and to be worn through in spots by the pressure of the lips of witnesses and prisoners. As there is no legal obligation resting upon magistrates to insist upon the ordinary form of Bible-oath, he had determined to discontinue the use of the book in his court, and he did so principally because he felt that the old form might result in the communication of infectious diseases. Since he has taken this stand, he has been in the receipt of letters of congratulation from many persons, for his advocacy of the cause of cleanliness and hygiene. The question must arise in the inquiring mind how it is that the judges and attendants at the various lower courts permit the books to be continued in use after they have become worn and filthy in appearance; the price of Bibles is not so exorbitant but that the supply could be renewed at least once a week.

Judicious Treatment of Convalescent Soldiers.—In a paper before the New York County Medical Association, Dr. Wickes Washburn records the following experience in caring for returning troops at the hospitals at Montauk Point. He says that on the afternoon of August 18 or 20 there arrived at the general hospital a group of ambulances containing about seventy-five men, only a few of whom probably had a pulse at the wrist; many were unconscious. They had endured on the transport, for three days without food, to the limit of their physical strength, and with the long, hard ride up from the dock, seated facing each other as in a stage, had simply, as they became exhausted, one by one, fallen over and were tangled in among each other in a most woful condition. By good fortune we were apprised of their approach by an army surgeon who happened to be coming in that direction and urged the ambulances on, himself coming forward at a gallop to let us know the desperate condition of the men. We abandoned all else, the doctors and nurses administering small doses of whisky to each man before he was taken out of the ambulance, unloading them as rapidly as possible, and placing them in the shade of the tents upon mattresses on the floor. Before this was quite completed I went to the kitchen and brought ten or twelve quarts of hot milk, and the nurses under my supervision and that of another doctor fed these men—many of them too weak to raise their heads—a few ounces of milk every fifteen or twenty minutes for two hours or more. I am glad to be able to state that only one of these seventy-five men died.

Mediastino-Pericarditis Without Endocardial Complication.—Cases of primary disease of the pericardium without valvular affection are not very common. For this reason, and because of the unusually early age at which the disease appeared, this case seems to be worthy of record. In 1895 Dr. Thomas Harris published a monograph containing accounts of his own cases of mediastino-pericarditis and all others recorded up till then. The youngest patient mentioned by him was a child 2 years of age, so that the above case probably represents the earliest age at which the affection has as yet been known to be present. Dr. Harris distinguished three pathologically distinct classes of "chronic inflammatory conditions in relation to the pericardium and mediastinum." In the first of these there is "adherent pericardium with marked increase of fibrous tissue in the mediastinum, not infrequently associated with caseous affection of the lymphatic glands of the mediastinum, and with adhesions of the exterior of the pericardium and the surrounding parts." These cases, following Kussmaul, he named indurative mediastino-pericarditis, and the above case seems to be an excellent illustration of the condition, occurring, however, at an unusually early age. Such cases are of interest clinically because of the difficulty in diagnosing the condition, and pathologically because their etiology is so obscure. If they are regarded as rheumatic, one is confronted with the absence of endocardial affection—an absence which, at any rate in children, is so rare in rheumatic heart affections as almost to negative the supposition. Moreover, besides the absence of endocarditis and of joint affection, there is in many of these cases no history of any illness which could be regarded as an attack of an acute pericarditis, the disease beginning insidiously and the first symptoms being those of the consequent cardiac dilatation or of dropsy. In the present case, except an increased area of cardiac dulness and an occasional lividity of the extremities, there was nothing for weeks to lead anyone to suspect any affection of the heart. Cases such as these differ on one hand from cases of obviously tuberculous pericarditis with generally much other evidence of tubercle, and on the other from the obviously rheumatic cases where there is endocarditis as well.—Blumfield: London *Lancet*, Dec. 31, 1898.

Infectious Disease Reports Under a Fee System.—According to the *Medical News* (Jan. 28, 1899), Dr. Paddock Bate, health officer of Bethnal Green, London, in his report for 1897, points out some of the tribulations confronting a health officer when the local physicians are allowed a fee for making reports of contagious diseases. The notification fee is half a crown, or about sixty-three cents. Duplicate reports were received and paid for in nearly 6 per cent. of the total certification. It would appear that the law is so framed as to unintentionally permit of the payment of partners in a medical firm if each of them reports the same case. Dr. Bate says this duplication of certificates represented a cost of $65, and that the expenditure of this sum is pure waste, though unavoidable by the wording of the law. In nine instances the notification certificates were withdrawn by the reporter, the lapse of time having afforded an opportunity to amend the original diagnosis. In ten cases there were no grounds to justify the practitioner in reporting the case as one of infectious disease. "A certain medical man certified thirteen cases of membranous croup within a month. I made no examination of the first half dozen, but could not help noticing that the patients did not appear urgently ill when the premises were visited in the ordinary course of my duties. One morning four of these certificates were sent in, whereupon notice was given the certifier that I should personally examine these and any future cases of membranous croup he might report. I did so, but failed to find symptoms of laryngeal obstruction in any instance. I reported the result of my examination to the Sanitary Committee and the fees for the certificates were disallowed as to the cases I had personally investigated, together with another certified on postmortem examination only. This was the subject of an inquest. The child was found dead in bed; the jury brought in a verdict of suffocation on the medical evidence; on the same afternoon I received a notification that the child had suffered from membranous croup, though nothing was said about this at the inquest. I may just mention that this was the only fatal case out of the whole thirteen, a magnificent testimonial to the skill of the doctor, supposing his diagnosis to have been correct. The medical man referred to wrote, protesting against his fees being disallowed, but took no further action beyond ceasing to certify membranous croup."

Iowa Osteopathy Law, 1898.—Chapter 69 of the laws of Iowa of 1898, is entitled "An Act to regulate the practice of osteopathy in the State of Iowa. [Amendatory to title XII, chapter 17, of the code, relating to the practice of medicine.]" It pro-

vides that any person holding a diploma from a legally incorporated and regularly conducted school of osteopathy of good repute as such, and wherein the course of study comprises a term of at least twenty months or four terms of five months each in actual attendance at such school, and shall include instruction in anatomy, physiology, chemistry, histology, pathology, gynecology, obstetrics and theory and practice of osteopathy, shall upon the presentation of such diploma to the State Board of Medical Examiners, and satisfying such Board that they are the legal holders thereof, be granted by such Board a certificate permitting such person to practice osteopathy in the State of Iowa, upon the payment to said Board of a fee of $20, which certificate shall be recorded by the county clerk, of the county in which the holder desires to practice, for which he shall receive a fee of $1. But the certificate thus provided for shall not authorize the holder thereof to prescribe or use drugs in his practice, nor to perform major or operative surgery. Any person who for the purpose of securing such certificate shall falsely represent himself or herself to be the legal holder of any such diploma, shall be deemed guilty of a misdemeanor, and on conviction be fined not less than $50 nor more than $100. Any such certificate may be revoked by the State Board of Health upon satisfactory proof of fraudulent misrepresentation in procuring the same or for any violation of the provisions of the certificate or for any gross immorality by the holder thereof. The system, method or science of treating diseases of the human body commonly known as osteopathy is further hereby declared not to be the practice of medicine, surgery or obstetrics within the meaning of section 2579, title XII, chapter 17, of the Iowa code.

As to Examiners Being All Regulars.—After the court of civil appeals of Texas rendered its decision in the case of Dowdell vs. McBride, as reported on page 1534 of the JOURNAL of June 25, 1898, under the heading, "Members of Board Can all be Regulars," the court named certified to the supreme court of Texas the question of whether Article 3778 of the Revised Statutes of Texas of 1895 violates the State constitution, in that said article provides that the "Board of Medical Examiners shall be composed of not less than three practicing physicians of known ability, and who are graduates of some medical college recognized by the AMERICAN MEDICAL ASSOCIATION." The answer of the supreme court, handed down Nov. 3, 1898, is that, as the court of civil appeals decided, Article 3778 is not in violation of the constitutional provision, that "the legislature may pass laws prescribing the qualifications of practitioners of medicine in this State, and to punish persons for malpractice, but no preference shall ever be given by law to any school of medicine," although it was established as a fact on the trial that the AMERICAN MEDICAL ASSOCIATION is composed of graduates of the school of allopathy, and does not recognize any other school of medicine. The supreme court says that the first part of the constitutional provision above quoted confers upon the legislature general power to pass laws: 1, prescribing the qualifications of practitioners, and 2, to punish persons for malpractice. Continuing the same sentence, the latter part of the provision, as the court construes it, subtracts from such otherwise general power, the word "but" being used in the sense of "except," by prohibiting the legislature in such laws from inserting any provision making a distinction in such qualifications or punishment on account of the "school of medicine" to which any of such "practitioners" or "persons" may happen to belong. The first portion dealing solely with "qualifications of practitioners" and "punishment," and there being nothing in the context to indicate that the latter portion was intended to embrace any wider range of subjects, the court says, it must be given the effect, indicated by its situation and close connection with what precedes, of being merely a limitation upon the previous general power of prescribing "qualifications of practitioners" and "punishments," and should not be construed as intending to control the legislation in the entirely different matter of prescribing the qualifications of members of the "Board of Medical Examiners" provided for in Article 3778, above quoted.

State Power to Compel Vaccination.—The general assembly may, in the exercise of the police power, the supreme court of Georgia holds, in the case of Morris vs. City of Columbus, confer upon the municipal corporations of the State authority to make and enforce ordinances requiring all persons who may be within the limits of such corporations to submit to vaccination whenever an epidemic of smallpox is existing, or may be reasonably apprehended. Particularly does it insist, which seems to be a question now for the first time decided, that the legislature can give a city jurisdiction in this matter over a person who, while he has his legal residence outside the city limits, is actually in the city during the day, while engaged in his employment, though it refrains from deciding whether or not it could give the municipal authorities jurisdiction over persons who live outside the city limits, and do not come into the city, as for example those living within a radius of one and a half miles from the city limits. In confirmation of what it does decide, it says that, even without express legislative permission, it is the current of authority that municipal ordinances have the same effect upon persons who come within the limits of a city, as they have upon regular inhabitants. But, on the ground that the right to enforce vaccination is derived from necessity, it says that, although the authority to compel vaccination conferred upon the municipality under consideration was very broad, still it can not assume that the legislature intended that it should be exercised save in cases of necessity. With the wisdom or policy of vaccination, it says that the courts have nothing to do. Their only province is to see that none of the rights guaranteed by the fundamental law are infringed. The ballot-box must do the rest, if the popular conception of right and justice is violated by an act of the legislature. There are several cases holding that an act of the legislature authorizing school boards to require vaccination, as a condition precedent to admission to the public schools, is not an invasion of any constitutional right of the pupil. Now, the court says that pupils of schools constitute a general class of persons. If the legislature can authorize the imposition of this condition upon one class, why not upon another? If it can say that the penalty for refusing to be vaccinated must be a denial of the pupil's right or privilege to attend school, why can it not say to another general class: "The penalty for your refusal to submit to vaccination shall be a fine or imprisonment?" And the court holds that both questions must be answered in the affirmative. It maintains that there can be no legal reason for refusing to allow a child to invoke a law to secure him in his right or privilege (whichever it may be termed) to attend a public school, which a citizen might rely on to secure him a residence in a given place. However, for municipal corporations to compel vaccination, the court holds that they must have express authority from the legislature, as no such power will ever arise by implication. And, in conclusion, it expressly declares that in no proper sense can such an act of the legislature as it in this case holds constitutional be said to deprive a person of any right without due process of law, or to deny to any persons the equal protection of the law.

Chemic Composition of Drugs and their Effects.—Ehrlich delivered an address at the meeting of the Berlin Internal Medicine Society, Dec. 12, 1898, on recent efforts to obtain different physiologic effects with synthetic remedies by altering their chemic composition. Reviewing the new antipyretics, hypnotics and anesthetics, we are impressed with the fact that the specific effect is always associated with a certain

definite grouping of the atoms in the molecule: in the anesthetics, upon the presence of the benzoyl group, in the hypnotics, of the ethyl group, etc. The chemic constitution, however, is not sufficient to explain the complicated processes of biology, but we are able sometimes to decide from the chemic composition of a stain which tissue it will affect. He has established that certain very poisonous substances can be rendered non-poisonous by the addition of sulphonic acid (as, for instance, anilin and sulphanilic acid), just as anilin can be deprived of the nerve-staining property by the addition of sulphonic acid. The same has been established in regard to the carboxyl group. He considers this change due to the change in the manner of splitting up the organism. The substance splits in the organism in a characteristic manner, and frequently with a specific predilection for certain organs or tissues. He mentioned, as an instance, that acetylparaphenylendiamin stains certain groups of muscles brown, the central portion of the diaphragm, and the muscles of the eye and outside of the throat—the same muscles which show a nerve-stain with a vital injection of methylene blue, and are the special haunts of the trichinæ. Witt's hypothesis may explain some of these processes observed in the organism. He assumes that the stains are not chemically bound in the tissues, but are merely in the form of a "stiff solution." As anilin dissolved in water can be shaken out of it with amyl alcohol, the stain passes out of the aqueous solution into a "stiff solution" in the tissues. In the same way the poison introduced into the living organism is "shaken out" of it—assuming that the poisons, like the stains, do not pass into the protoplasms but only into the paraprotoplasmic bodies. He concluded, by asserting that "synthetically produced substances must fulfil two conditions to possess certain definite physiologic effects: they must be so constituted chemically as to combine with the elements of the tissues in a stiff solution, and they must contain the atom complex which exerts the specific effect. Thus, in cocain, the benzoyl group is responsible for the anesthetic effect produced, while the only use of the other molecule is to enable the benzoyl group to form a stiff solution with the nerve.

Legal Age of Puberty.—For the first time in the judicial history of the State of Virginia, extending over a period of more than 100 years, a case drawing in question the rule of the common law in respect to the age of puberty has come up for review in a court of last resort in the State. The case referred to is the recent one of Foster vs. Commonwealth. This case presented for decision the important question whether a boy under 14 years of age is capable, under the law, of committing the crime of rape or of the attempt to commit it. By the common law, a boy under 14 years of age is conclusively presumed to be incapable of committing the offense, whatever be the real fact. And evidence to rebut the presumption is inadmissible. After making these statements, and having called attention to the fact that, in the United States the rule of law has not been uniformly followed, and after reviewing some of the authorities on the subject, the supreme court of appeals of Virginia holds that the presumption, from the inaction of the legislature, which is the representative of the sovereign power of the people, and specially charged with the duty of making or amending laws to meet their needs, is that it has not been found that the climate of the State or the habits and conditions of its people require any change or modification of the rule. And the court says that it is itself not aware of any climatic influence on the people of the State, by reason of their locality, or difference in their habits or condition, that calls for a modification of the unwritten laws of the State as to the age of puberty, even if it were satisfied that it had the power to make it. The inconvenience, if not absolute inability, of obtaining evidence of the puberty of a boy under the age of 14, and his capacity to commit the crime of rape, except by the exposure of his person, either voluntary or compulsory and the questionable right of the commonwealth to obtain it by compulsion, the court adds, do not invite a modification of the arbitrary rule of the common law; while unreliable and unsatisfactory evidence of the capacity of the accused to commit the crime, when so obtained, and the statement and discussion of indecent things which must attend its introduction before the jury, should cause hesitation to depart from a long-established rule, which has had the sanction of the wisest judges and undergone the test of years. So the court holds that a boy under 14 years of age is conclusively presumed to be incapable of committing the crime of rape, and as a plain legal deduction, is also incapable in law of an attempt to commit it.

Septic Endocarditis.—An interesting case of septic endocarditis is reported by Dr. Ernest Sanson in the London *Lancet* for Dec. 10, 1898. A case may assume an aspect of extreme danger, threatening death from other causes than the complication of infective endocarditis, and believing therapeutics may be an agency to avert the fatal tendency, quotes the instance in point; A young American, aged 15 years, had a severe attack of rheumatic fever. He recovered sufficiently to take a tour in Norway, but five months after the first attack he suffered from rheumatic fever of greater severity a second time. Treatment by the salicylates was followed by improvement, but there was a relapse after a fortnight. The heart became greatly enlarged, the systoles irregular and ineffectual, and the murmurs first of mitral regurgitation and afterward of aortic regurgitation were manifested. With great care the patient was brought from Bergen in charge of his physician, to London. For many weeks the condition was one of extreme gravity. I observed the case on many occasions. There were successive enlargements of the heart. On many occasions it was noted that the enlargement was followed by recession almost to the normal in a brief period; on one occasion the area of dulness receded from a line considerably to the right of the sternum on the right side of a finger's breadth outside the nipple on the left to the mid-sternal line and a line just within the nipple, in the space of twenty-four hours. Then there was for a time considerable improvement and for about five weeks comparative calm, but again the grave signs returned and on one occasion I was called to the patient when death seemed imminent; the area of the heart was much enlarged, the heart-beats were very feeble, the pulse small and never under 100, the face pallid, the breathing short and hurried, and there was orthopnea but no dropsy. I then determined to try in this acute case a plan which had seemed to me to be of much usefulness in some chronic cases—the continuous galvanic current in the course of the vagus. There was a temporary improvement, and we continued the galvanism, administering the current for six minutes three times a day, the current being from eight bichromate cells—three or four milliampères. One electrode—the anode—well moistened with warm saline water was kept pressed over the nape of the neck, and the other—the cathode—was applied in the groove outside the larynx and the trachea for six minutes on the right and left sides of the neck alternately. The pulse-rate progressively diminished to 88, 84, and 76, with few variations. The course of treatment was not interrupted for some months, but there was soon sufficient recovery to permit of the patient returning to America. I have seen him here since (in the summer of this year), a hearty, strong, well-developed young man. He has now no cardiac symptoms, though there is the warning note of the murmur of aortic regurgitation.

Prizes Offered by Paris Academy of Medicine.—Omitting the four prizes not open to foreigners, the list is as follows: The articles or works must be in French or Latin, and accompanied by the name of the writer in a sealed envelope, except those prizes marked with an asterisk, which are exempt from these latter conditions, as manuscript or published works are received

They become the property of the Academy. No article is received after the end of February, to compete for the current year. The prizes alone confer the title of "Laureate of the Academy." Academy prize, 1000 francs; 1899, physiology and pathology of the thyroid gland; 1900, medication with organic juices; 1901, partial epilepsy from the clinical and experimental point of view. Alvarenga prize, 800 francs, annual; awarded for the best article or unpublished work in any branch of medicine. Amussat, * 1000 francs: 1899, for the best combined anatomic and experimental work that has realized or prepared the way for the greatest progress in surgical therapeutics. Argenteuil, * 6,800 francs: 1889, treatment of stricture of the urethra or other affections of the urinary passages. Audiffred, * an annual income of 24,000 francs: for a sovereign preventive or curative remedy for tuberculosis, discovered before 1921. Barbier, * 2000 francs, annual: for an effective cure of the so-called incurable diseases—cancer, epilepsy, scrofula, typhus, cholera morbus, etc. It can be divided among those who have accomplished the most in this line. Bourceret, * 1200 francs, annual: for the best work or works on the circulation of the blood. Capuron, 1000 francs: 1899, modifications in the placenta and membranes retained in the uterus; 1900, hydromineral treatment of albuminuria; 1901, rigidity of the cervix during parturition, not due to cancer or fibrous growths. Chevillon, * 1500 francs, annual: cancerous affections. Civrieux, 800 francs: 1900, delirium in general paralysis; 1901, rôle of alcohol in mental pathology. Clarens, * 400 francs, annual: for the best manuscript or printed work on hygiene. Daudet, 1000 francs: 1899, lymphadenoma; 1900, results of surgical treatment of cancer of the ovaries: 1901, the best surgical means of "opposing cancer of the mamma." Desportes, * 1300 francs, annual: awarded to the author of the best work on practical medical therapeutics. Godard, * 1000 francs, annual: for the best work on external pathology (1899 and 1901; internal, 1900). Herpin, 3000 francs: 1899 and 1901, for the best work on epilepsy and nervous affections. Laborie, * 5000 francs, annual: awarded to the "author of the work which has notably advanced the science of surgery." Larrey, * 500 francs, annual: for the best work on medical statistics. Lefèvre, 1800 francs: 1899, melancholia. Lorquet, * 300 francs, annual: for the best work on mental affections. Meynot, * 2600 francs: for the best work on diseases of the eyes, 1899 and 1901; ears, 1900. Nativelle, * 300 francs, annual: for the best work on the extraction of the active, definite, crystallizable principle of a medical substance, never before isolated. Portal, 600 francs: 1899, experimental research in regard to the inoculation and contagion of cancer; 1900, pathologic anatomy of salpingitis and its relation to its determining cause; 1901, lesions of the nerve-centers produced by the tetanic toxin. Pourat, 700 francs: 1899, experimental research in regard to the question of the immediate or final destination of albuminoid foods; 1900, "intravascular sanguine tension"; 1901, circulation of the blood in the lungs. Ricord, * 600 francs: 1899 and 1901, to the author of the best work on venereal diseases that appears during the two years. Vernois, * 700 francs, annual; for the best work on hygiene. Baillarger, * 2000 francs: 1900, for the best work on the therapeutics of mental disease with clinical observations, supplemented by a second part containing a study of the best means of improving public and private insane asylums, and especially what changes are required to promote moral and individual treatment. Boullard, * 1200 francs: to the physician who has produced the best work or attained the best curative results in mental diseases, arresting or attenuating their progress. Dupierris, * 2300 francs: 1900, for the best work on anesthetics or affections of the urinary passages. Falret, 700 francs: 1900, clinic forms of neurasthenia and their treatment. Itard, * 2400 francs: 1900, awarded to the author of the best book on practical medicine or applied therapeutics, published at least two years. Orfila, 2000 francs: 1900, alkaloids of belladonna, hyoscyamus and datura, studied from the standpoints of physiology, pathology, pathologic anatomy, therapeutics and legal medicine; also their effects upon the organism and the fluids of the animal economy, methods to combat intoxication, detect them in life and after death, and determine when all possibility of detecting them is past, etc. Perron, * 3,800 francs: 1900, for the work that has proved most useful to the progress of medicine. Saint Iager, 1500 francs: 1900, for the experimental student who succeeds in producing a thyroid tumor in an animal by the administration of substances extracted from the waters or soil of localities where goiter is endemic. Saintour, * 4,400 francs: 1900, to the author of the best work in any branch of medicine. Stanski, * 1400 francs: 1900, to the person who has best demonstrated the existence or non-existence of miasmatic contagion by infection or by contagion at a distance; or to the one who has thrown the most light during the two years on any question relating to the contagion of inoculable diseases.—Hugo, * 1000 francs: 1901, for the best work published or unpublished, relating to some point in the history of the medical science. Jacquemier, * 1700 francs: for the work on an obstetric subject that has realized an important progress; it must have been published at least six months before the opening of the *concours*. Louis, 300 francs: 1901, thyroid medication. Mège, 900 francs: 1901, pathogenesis of simple ulcer of the stomach.

Movement of Troops via San Francisco, Cal., to Manila.—According to reports recently received by the Surgeon-General of the Army, the transports *Morgan City* and *Scandia* sailed from San Francisco, Cal., Jan. 26, 1899. The former carried many tons of freight, and a number of the officers of the Twentieth U. S. Infantry, together with their families and those of the enlisted men of the regiment, with several civilians, including five undertakers in the employ of the quartermaster's department, who go to Manila for the purpose of disinterring and preparing for shipment to the United States the remains of all soldiers buried there. This ship carried two army medical officers, Lieuts. Irving W. Rand and Thomas J. Kirkpatrick, a hospital steward, an acting steward, three privates of the hospital corps and four female nurses, with an ample medical and hospital supply for the voyage. The *Scandia* is the first transport sailing from San Francisco which has come strictly under the regulations for the Army Transport Service. On the presumption that she is to be maintained as a regular transport, extensive alterations and additions were made to her. A new steam galley was constructed, doubling her former galley capacity, a large cold-storage compartment, which will enable her to carry fresh meat sufficient for the voyage to Manila and return for her complement of men, some fourteen hundred in number; a dispensary complete in all essential points and a medical storeroom conveniently fitted up, the last two containing an adequate supply of instruments, dressings, medicines, etc., for one regiment for six months. She has two hospitals, one of twenty berths and one of eight berths, also a small dispensary in connection with the stateroom of the transport surgeon. This vessel carried most of the officers and all the enlisted men of the Twentieth Infantry. The ship's officers and crew numbered 120. With the troops were Acting Asst. Surgeons Burke L. Johnson, W. R. Van Tuyl, Francis M. McCallum and R. F. Gray, the last being the surgeon of the transport. In addition to the medical supply of the vessel and that brought by the regiment, a brigade allowance was put on board for the use of the regiment. A medical inspection was made before sailing and one officer and three privates were detained on account of sickness, two of the latter were in the eruptive stage of measles. This disease was reported as epidemic at Fort Leavenworth, Kan., at the time of the departure of the regiment from that post and several cases were left behind, while en route, at Fort Douglas, Wyo., and Fort Logan, Colo. No effort was spared by Capt. T. U. Raymond, the medical superintendent of the transport service, to properly equip these ships and provide for the comfort and welfare of the troops.

On the same day that these two vessels were steaming out of the Golden Gate with the Twentieth Infantry, a train of 37 tourist sleepers, 5 Pullman sleepers and 5 baggage cars, drew out from Fort Crook, Neb., in five sections, carrying the Twenty-second Infantry westward for embarkation to Manila. The command consisted of 29 officers and 1224 men, accompanied by 3 medical officers, 4 non-commissioned officers, and 12 privates of the hospital corps. In addition to the medical and surgical chests, supplies were taken to last the regiment for three months. In anticipation of this movement a general inspection and vaccination of the command was instituted Dec. 12, 1898, and as recruits reported from time to time, was continued to Jan. 10, 1899, and all the men who were thought to be unfit for duty in the tropics were placed under careful medical observation. On final examination before starting only nine of these men were detained.

Advices from San Francisco of a later date report the sailing of two other chartered transports, the *Senator* and the *Ohio*, at noon Feb. 1, 1899. The former carried 16 officers and 643 enlisted men of the Twenty-second U. S. Infantry with 10 wives of officers, 2 officers and 30 men of the Twentieth Infantry and 2 medical officers, Capt. John S. Kulp, assistant-surgeon U. S. A., and Acting Asst.-Surgeon Isaac M. Brewer, with 1 hospital steward, 1 acting steward, 6 privates of the hospital

corps and 4 female nurses. The latter carried 12 officers and 580 men of the Twenty-second Infantry, 7 soldiers' wives and 170 recruits with 2 medical officers, Lieut. Richard P. Strong, asst.-surgeon U. S. A., and Acting Asst.-Surgeon Charles H. Andrews, 2 acting stewards, 6 privates of the hospital corps and 2 female nurses. Nineteen berths in staterooms aft on the hurricane deck were reserved on the *Senator* for hospital purposes, and a special ward of 18 beds was constructed on the main deck, aft, on the *Ohio*.

Gleanings. Lange and Meltzing have succeeded in taking photographs of the inside of the stomach, fifty negatives at one sitting, showing the mucosa (*Munich Med. Woch.*, 1898, 50). . . Hutinel cures thrush in infants with a couple of lavages of the stomach during the day; the diarrhea, dyspepsia and erythema disappear with the thrush from the mouth in a couple of days in most cases. . . Letulle describes two cases with diverticular cavities in the neighborhood of the ampulla of Vater, five in one case. The other case had a similar diverticulum in the esophagus about twelve centimeters above the cardia (*Presse Méd.*, January 11). . . Carre and Fraimbault have found that the cattle plague is contagious for the pig also, at least in Annam. The infective agent perishes in fifteen days (*Ann. de l'Institut Pasteur*, 1898, 12). . . Singer is convinced that rheumatism is of a pyemic nature (*Vienna Med. Presse*, 1898, 7). . . Erosions of the teeth in children should induce a careful examination for traces of tuberculosis, as they are frequently noted on tuberculous subjects, while they are exceptional in rhachitis (*Gaz. degli Osp.*, January 10). . . Three cases of myositis after scarlet fever observed by Bruck, one affecting the muscles of the back, another of the thorax, and of the abdomen in the third case (*Gaz. degli Osp.*, January 12). . . Witzel uses a Mikulicz tampon of the most porous and absorbent gauze for abdominal suppurations, claiming that the movement of fluids toward the center of such a drain sucks up all the bacteria into the gauze, and that they can be removed in this way much better and more surely than with large lavages. He does not change it for two to six days if there is no increase of temperature (*Union Méd. du Canada*, January. . . Six echinococcus cysts in boy of seven; operated twice; death. . . Sudden Menière's disease in girl of 12 years; suppurative peritonitis a year before; quinin ineffectual; recovery after six weeks with permanent deafness. . . Boy of 10 years bitten by a "cross adder" cured with analeptics and baths at 39 degrees C., with sweats afterward. . . Two cases of primary cancer reported, developing from an old ulcus cruris; one was amputated the other excised and healed after repeated Thiersch transplantations. . . Arsamasskow confirms the presence in measles of the bacillus described by Canon and Pielicks. . . Acid or fat introduced into the duodenum of dogs with gastric fistulæ causes the pylorus to contract by reflex action. When a copious pancreatic secretion neutralizes the acid, then the pylorus relaxes again (*St. Petersburg Med. Woch.*, Dec. 31, 1898.)

Hospitals.

The West Virginia Asylum for Incurables, Huntington, W. Va., was recently dedicated. . . St. Louis has established a hospital exclusively for colored patients, and under the management of colored physicians and colored nurses, to be known as the Auxiliary Hospital of St. Louis. . . The Lakeside Hospital, Cleveland, Ohio, reports 1367 patients treated in its wards during the past year and 5314 in the dispensary. The hospital is equipped for 150 patients, one-half of the beds being set aside for those unable to pay. . . W. C. A. Hospital, Council Bluffs, Iowa, will receive $30,000 in cash and property from the estate of the late Dr. Ballard. . . The Fortnightly Club of Evanston, Ill., is to fit out a maternity ward in the Evanston Hospital . . The Monmouth Memorial Hospital of Long Branch, N. J., for the year ending Dec. 31, 1898, reports patients in wards and rooms, 17; admission during the year, 287; the number of private patients increased from 11 in 1897 to 41 in 1898; number of operations 111. . . The new Mt. Sinai Hospital of New York City hopes to enter upon its new era free from debt. The site, which covers an entire block between Madison and Fifth Avenues, 100th and 101st Streets, was bought in April, 1898, for $387,000. It was decided at that time to raise $900,000, which is thought sufficient to cover the cost of grounds and buildings and to establish an interest-bearing fund for the support of the hospital. Two-thirds of this amount was raised by private contributions in less than a month. The directors hope to be able to raise the remaining $300,000 shortly.

Philadelphia.

Dr. J. M. Da Costa.—Dr. J. M. Da Costa has been elected a member of the Board of Trustees of the University of Pennsylvania.

Dr. H. C. Wood.—Dr. Horatio C. Wood, who has for several days been confined to bed with la grippe, is now convalescing and will shortly resume his lectures at the University of Pennsylvania.

Dr. John V. Shoemaker Honored.—Dr. John V. Shoemaker has been presented with a handsome sword, by the students of the class of '99 of the Medico-Chi. College. The presentation speech was made by Dr. Ernest Laplace.

Resignation of Dr. Peyton.—Major D. C. Peyton, U.S.A., who has been stationed here by the Government to superintend the apportionment and to look to the welfare of the many soldier patients sent to the hospitals of this city and throughout the State, has sent in his resignation and will engage in general practice. Dr. Peyton entered the volunteer service from Jeffersonville, Ind., at the beginning of the war, and was assigned to duty at Camp Meade as assistant chief surgeon and in August came to this city. Under his well-equipped system every soldier patient was carefully looked after during illness, and none were allowed to be discharged without being provided with transportation, sleeping-car accommodations and money for traveling expenses.

Improvement at Samaritan Hospital.—The managers of the Samaritan Hospital are at present furnishing all the appliances and material for the equipment of a pathologic laboratory connected with that institution. Having recently acquired a considerable amount of adjacent ground for the enlargement of the hospital proper, this latter achievement adds to its already well-established reputation. Dr. Thomas J. Yarrow is pathologist to the hospital.

Report of Methodist Hospital.—During the month of January 77 patients were admitted and 59 discharged. At the recent annual meeting and banquet, the principal address was delivered by Dr. Richard C. Norris, president of the medical board of the Hospital.

Annual Report of Municipal Hospital.—The report first calls attention to the needs of the hospital for the treatment of cases of smallpox, there now being no adequate apartments for these cases should an epidemic occur. The number of patients admitted during the year was 1797, as against 2179 last year. This decrease is attributed to the fact that relatively but few cases of scarlet fever occurred during the year, there being 380 against 858 during the year 1897. As usual, diphtheria has been very prevalent, there being 1229 patients admitted during 1898, against 1295 for 1897. Notwithstanding antitoxin has been more freely used than formerly, the death-rate remains quite high.

Danger in Measles.—Dr. Benjamin Lee, Secretary of the State Board of Health, has sent in a request to the Board of Health of this city urging upon them the importance of using stringent measures to prevent the rapid spread of measles. He states that whereas scarlet fever only caused a total of 114 deaths in this city last year, 234 died from measles.

Artistic Work by Insane Printers.—The subject of proper diversion and training of the insane is one which has engaged the attention of the State Insane Asylum at Norristown. That much good can be done in cultivating anew the latent traits of each individual under these circumstances, and also that a considerable expense can be saved the State is abundantly proven by the issuance of the nineteenth annual report of the State Hospital for the Insane located in the above-named city. The report is said to be illuminated with clear, very handsome half-tone illustrations of the building, and contains a total of 112 pages, and the entire book, including printing and binding, was produced in the institution. In order that representatives might be properly influenced in providing ample room for

patients in all the different asylums of the State it is proposed that a copy of the book be placed upon the desk of each public representative at Harrisburg.

INFECTION CONVEYED BY TELEPHONE.—The action of the Health Department of New York in sending out inspectors to examine public telephones for the purpose of ascertaining whether or not they were the means by which contagious and infectious diseases might be conveyed, has also aroused the Board of Health of this city, and the matter will be brought before the next meeting of the State Board of Health of Pennsylvania, to be held in Harrisburg February 23.

MORTALITY STATISTICS.—While the number of new cases of typhoid fever throughout the city have shown a slight decrease over last week, the results go to show that the disease is progressing. The number of deaths in the city was 569, an increase of 57 over last week, and of 63 over the corresponding period of last year. Of the total number of deaths, 144 occurred in children under the age of 5 years.

THE PUBLIC SERVICE.

Movements of Army Medical Officers under orders from the Adjutant-General's Office to February 9, 1899.

Lieut. Thos. S. Bratton, asst.-surgeon U.S.A, relieved from present duty with 3d Cavalry, to return to his station at Tybee Island, Ga.

Lieut. Chas. Bruning, asst.-surgeon 2d U.S. Infantry, resignation accepted.

Henry R. Carter, Jr., acting asst.-surgeon, from Washington, D. C., to Atlanta, Ga., for duty in the Dept. of the Gulf.

Raphael A. Edmonston, acting asst.-surgeon, from the Josiah Simpson Hospital, Va., to the hospital ship "Relief" at New York City, for transportation to Manila for duty.

Capt. Edward Everts, asst.-surgeon U.S.A., relieved from duty at Ft. Apache, Ariz., to proceed to San Francisco, Cal., for duty in the Dept. of California.

Major Chas. M. Gandy, chief surgeon Vols., from the Josiah Simpson Hospital, Va., to duty at Ft. Slocum, N. Y.

Major Robert J. Gibson, surgeon U.S.A., to duty at Ft. Meade, S. Dak., on the expiration of his present leave of absence.

Chas. R. Gill, acting asst.-surgeon, from Brooklyn, N. Y., to Havana, for duty in the Division of Cuba.

Major Geo. G. Groff, brigade surgeon Vols., former orders granting discharge March 22, 1899, revoked.

Major Henry S. T. Harris, brigade surgeon Vols., to Ft. Sheridan, Ill., on the closing of the 2d district hospital, Huntsville, Ala.

Thos. D. Ingram, acting asst.-surgeon, to Ft. McIntosh, Texas., from the general hospital, Ft. Myer, Va.

Robert F. Jones, acting asst.-surgeon, granted sick leave.

Major Wm. P. Kendall, brigade surgeon Vols., leave of absence for fifteen days.

Major George E. Lyon, surgeon 3d U.S.V. Engineers, resignation accepted, to take effect Feb. 12, 1899.

Lieut-Col. Louis M. Maus, chief surgeon Vols. (major and surgeon U.S.A.), honorably discharged from volunteer service.

Major Edgar A. Mearns, chief surgeon Vols., relieved from present duties, to duty at Ft. Adams, R. I.

Major Aurelis Pallones, surgeon 9th U.S.V. Infantry, honorably discharged with one month's pay and allowances.

John W. Ross, surgeon U.S.N., retired, having been assigned to duty under the War Department, from Clarksville, Tenn., to Havana, for duty in the Division of Cuba.

Major Eugene L. Swift, brigade surgeon Vols. (captain and asst.-surgeon U.S.A.), honorably discharged from volunteer service, to take effect Feb. 10, 1899.

Llewellyn P. Williamson, lieutenant and asst.-surgeon U.S.A., from Jefferson Bks., Mo., to Havana, for duty in the Division of Cuba.

Lieut. Wm. H. Wilson, asst.-surgeon U.S.A., leave of absence for two months on closing the hospital at Bedloe's Island, N. Y.

Movements of Navy Medical Officers.—Changes in the medical corps of the U.S. Navy for the week ending Feb. 11, 1899.

Surgeon C. G. Herndon, detached from the "Columbia" when put out of commission, and ordered home to wait orders.

Surgeon J. C. Byrnes, detached from the "Minneapolis," when put out of commission, and ordered home to wait orders.

Surgeon J. C. Byrne, detached from the "Puritan," when put out of commission, and ordered to continue duty at the Norfolk navy yard.

Asst.-Surgeon J. Stepp, detached from the "Justine," when put out of commission, and ordered immediately to the "Independence."

Asst.-Surgeon E. M. Blackwell, detached from the "Franklin" and ordered to the "Abarenda" immediately.

Asst.-Surgeon D. F. Sughrue, detached from the "Abarenda" and ordered home.

P. A. Surgeon T. A. Berryhill, detached from the "New York" and ordered to the "Panther," by steamer of February 15.

P. A. Surgeon C. E. Riggs, detached from the "Topeka" and ordered to the "New York" immediately.

Asst.-Surgeon F. E. McCullough, detached from the naval hospital, Mare Island, Cal., and ordered to the "Nero" immediately.

Asst.-Surgeon J. Stepp, detached from the "Independence" and ordered to the naval hospital, Mare Island, Cal., temporarily.

Surgeon A. R. Wentworth, relative rank of lieutenant, from Oct. 9, 1898.

Asst.-Surgeon D. F. Sughrue, order of February 4, detaching from the "Abarenda" and ordering home, modified to temporary duty on the "Topeka," and when that vessel arrives at Boston, Mass., detached and ordered home.

Surgeon C. G. Herndon, ordered to temporary duty on the "Richmond."

Asst.-Surgeon F. M. Rogan, detached from the "Sterling," when put out of commission, and ordered to temporary duty on the "Wabash."

The following order was issued from the headquarters of the Army, February 4: Surgeon John W. Ross, U.S.N., retired, having been assigned to duty under the War Department, will proceed from Clarksville, Tenn., to Havana, Cuba, and report in person to the commanding general, division of Cuba, for assignment to duty.

Marine-Hospital Changes.—Official List of Changes of Stations and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the seven days ended Feb. 9, 1899.

Surgeon George Purviance, granted leave of absence for ten days.

Surgeon J. H. White, to represent Service at a conference of health officers to be held at New Orleans, La., Feb. 3 to Feb. 9, 1899.

P. A. Surgeon G. M. Guiteras, granted leave of absence for ten days.

P. A Surgeon M. J. Rosenau, to proceed to New York City, for special temporary duty.

Junior Hospital Steward N. C. Comfort, to report to the acting asst.-surgeon in temporary charge, Cincinnati, Ohio, for duty and assignment to quarters.

Junior Hospital Steward Henry E. Davis, to report to the medical officer in command, Boston, Mass., for duty and assignment to quarters.

APPOINTMENTS.

R. H. McGinnis of Florida, to be acting asst.-surgeon for duty at the port of Jacksonville, Fla., Jan. 28, 1899.

Newton C. Comfort of Pennsylvania, and Henry E. Davis of Massachusetts, to be junior hospital stewards, Feb. 4, 1899.

CHANGE OF ADDRESS.

Andrews, A., from Weston to 208 W. Burke St., Martinsburg, W. Va.
Appleby, T. E. W., from 48 E. 4th St. to 226 Summit Ave., St. Paul, Minn.
Best, M. K., from 88 Canal to 194 Barclay St., Grand Rapids, Mich.
Cheshire, M. N., from Chicago to Anamosa, Ia.
Fortner, C. E., from Detention Hospital to 579 Adams St., Chicago.
Goodwin, H. C., from Hanover, N. H. to 238 Main St., Amesburg, Mass.
Haley, J. G., from 866 Van Buren St. to 1009 Harrison St., Chicago.
Hargus, H. H., from Decatur, Tenn. to Klamath Falls, Ore.
Hilliard, W. L., from Greensboro to Asheville, N. C.
Jaquith, W. A., from 1375 W. Harrison to 2522 Calumet Ave, Chicago.
Kadlubowski, T. L., from 312 Forest Ave. to 754 Hasting St., Detroit, Mich.
Knox, D. B., from Newton to Georgetown, Ky.
McLaren, J. L., from Grand Blanc, Mich. to Santa Barbara, Cal.
Patrick, F. L., from 201 11th St. to 386 Grove St., Milwaukee, Wis.
Porter, J. W., from Litchfield to Midway, Kan.
Pifer, J. L., from Chicago to Buchanan, W. Va.
Runkel, W. W., from 2324 Voliet to 1174 Holton St., Milwaukee, Wis.

LETTERS RECEIVED.

Allport, F., Chicago; Ambrose, O. A. (2), St. Louis, Mo.; Atkinson, W. B., Philadelphia (2), Pa.; Ayer, N. W. & Son, Philadelphia, Pa.

Babcock, L. C., Philadelphia, Pa.; Bailey Mfg. Co., The A. R., New York City; Barbee, J. T., Jackson, Tenn.; Bassett, H. L., Philadelphia, Pa.; Beeny, F. R., Albany, N. Y.; Beck, C., New York City; Becktold Printing and Book Mfg. Co. (2), St. Louis, Mo.; Binder, H. W., St. Louis, Mo.; Bohannan, Wm. J. H., Stamford, Conn.; Bowles, T. J., Muncie, Ind.; Boynton, S. W., San Antonio, Texas; Brothers, S., New York City; Butler, J. J., Chicago.

Cassady, G. W., Chicago; Chaille, S. C., New Orleans, La.; Cleveland Col. of P. & S., Cleveland, Ohio; Coble, J., Spencer, Ind.; Coverly, T. A., San Angelo, Texas; Consumers Co., Chicago.

Dempsey, J. Geo., New Orleans, La.; Dessosier, G. N., Danville, Cal.; Dickens, H. W., Cross Village, Mich.; Dorr, H. I., Boston, Mass.; Du Bose, F. G., Selma, Ala.; Durham, C. E., Galveston, Texas.

Egan, J. A., Springfield, Ill.; Electro Medical Mfg. Co., Chicago; Elliott, H. G., New York City; Elgin Milkine Co., Elgin, Ill.; Engle, H. P., Newton, Iowa; Entriken, F. B., Findlay, Ohio.

Farrar, J. D., Baltimore, Md.; Field, G. A., Moorland, Iowa; Fitzpatrick, T. V., Cincinnati, Ohio; Foote, E. M., New York City; Freeman, L. D., Nashville, Tenn.

Gardner, J. R., Iowa City, Iowa; Garrigues, H. J., New York City; Goodwin, H. C., Amesburg, Mass.

Hagan, A. W., Buffalo, N. Y.; Hall, J. F., Chicago; Hammond Typewriter Co., Chicago; Harrie, E. A., Derby, Conn.; Hargus, H. B., Decatur, Tenn.; Hermann, A. L. (2), Minneapolis, Minn.; Herrick, J. B., Chicago; Hilliard, W. L., Asheville, N. C.; Hope Chemical Co., Chicago; Rouse, L. F., Sinking Spring, Ohio; Hummel, A. L., Adv. Agency, New York City; Hyde, H. C., Baltimore, Md.

Jastrow, M. Jr., Philadelphia, Pa.; Jelks, J. T., Hot Springs, Ark.; Jones, C. C., Galveston, Texas.

Kamarer, J. C., Harrisburg, Pa.; Kelly, C. J., Denver, Colo.; Kellogg, J. H., Battle Creek, Mich.; Kempson & Co., J. F., New York City; Kenyon News and Postal Subscription Co., Chicago; King, A. F. A., Washington, D. C.; Klasen, J. P., Huron, Ohio; Kreissl, F., Chicago.

Landon, O. W. (2), New Hampton, Iowa; Lehn & Fink, New York City; Levy, Robert, Denver, Colo.

Maddox, W. H., Dayton, Ohio; Main, A. S., Loup City, Neb.; Mathews, C. O., Denison, Texas; Mattison, J. B., Brooklyn, N. Y.; May, J. M., Westside, Miss.; Medical Advertising Bureau, The, New York City; Merrick, M. B., Passaic, N. J.; Meredith, N. O., Widmore, Pa.; Meredith, G. W., Ashland, Neb.; Miller, E. L., Detroit, Mich.; Moe, A. J., Chaseburg, Wis.; Monash, D. F., Des Moines, Iowa.; Moeller, Thos., Hillsboro, N. D.; Mulford, H. K. Co., Philadelphia, Pa.; Mumaw, W. S., Bascom, Ohio; Munroe, J. P., Davidson, N. C.; Myers' Printing House, New Orleans, La.; McArthur Hypophosphite Co., Ansonia, Conn.; McClelland, J. S., Sandusky, Ohio; McGill, Jersey City, N. J.

Newland, E. E., Hunnewell, Kan.

Oman, E. S., Columbus, Ohio.

Palatable Water Still Co., Chicago; Paulus, A., Marshfield, Wis.; Parker, J. H., St. Louis, Mo. Peak, J. Hunter, Louisville, Ky.; Pendleton, G. W., Idaho Falls, Idaho; Percival, C. G., Boston, Mass.; Platter, H. M., Columbus, Ohio; Plummer, H. E., Des Moines, Iowa; Procter & Collier Co., Cincinnati, Ohio.

Reeve, J. L., Osseo, Wis.; Reynolds, H. D., New York City; Risinger, W. E., Billingsville, Ind.; Ross, J. W., Key West, Fla.; Rundel, A. S., Flint, Mich.; Runkel, W. W., Milwaukee, Wis.; Rutledge, S. W., Grand Forks, N. D.

Savage, G. H., Sherman, Texas; Savage, G. C., Nashville, Tenn.; Smith, A. J., Chicago; Smith, Elsworth, St, Louis, Mo.; Snydacker, J. G., Chicago; Souvenir Magazine, Ann Arbor, Mich.; St. John, S. B., Hartford, Conn.; Subscription News Co., Chicago.

Terry, C. E., Denver, Colo.; Treat, E. B. & Co., New York City; Truax, Chas., Greene & Co., Chicago; Tuley, Geo. E., St. Louis, Mo.; Tyree, J. S., Washington, D. C.

Ward Bros., Jacksonville, Ill.; Warde, J. A., Dubuque, Iowa; Wark, W. K., Washington, D. C.; Western Static Machine Co. (2), Kansas City, Mo.; Wilde, W. H., Chicago; Woldert, E. A., Philadelphia, Pa.; Wright, J., Clinton, Ill.